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An Address
ON
"WILLIAM HEY; MEDICAL EDUCATION."

Delivered to the Students of the Leeds Medical School on Oct. 18th, 1904,

BY EDMUND OWEN, F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. MARY'S HOSPITAL, LONDON.

MR. PRESIDENT AND GENTLEMEN,—A few months ago your secretary, Mr. Gordon Thomas, wrote that your society extended to me the invitation to open the business of this new session by an Address. For a while I hesitated to accept it, because I was unable to think of any subject on which I could hope to speak with becoming authority, or with a fair prospect of securing your attention. But after an amount of hesitation which I deemed sufficient to appease all feelings of diffidence and apprehension, I accepted. But let me assure you that I was prompted to this conclusion rather by a sense of respect for the Leeds School of Medicine than by the thought that I could bring forward anything worthy of the compliment which you have paid me. As soon as Mr. Thomas received my affirmative reply, he wrote to ask me what was going to be the subject of my address. By a strange coincidence, this was the very question that I was about to put to him. But when I began to look for a subject two thoughts presented themselves—Education in Surgery and William Hey.

William Hey, the Leeds surgeon, a man of something more than a European reputation, was born in 1736. At a very early age he began to use sharp instruments, for when but four years old, whilst cutting a piece of string upwards, he stuck the blade of the knife into his right eye, forever destroying the sight of it. This was a bad start in life for a man who was eventually to be a great surgeon; but it did not stop William Hey. He must have been an extraordinary individual, for even as a boy he loved learning, and spoke French correctly and fluently. Moreover, like George Washington, he never told a lie. I wonder how many students have subsequently entered the Leeds School of Medicine with the three-fold distinction of having loved lessons; of having acquired a correct knowledge of French, and, when talking fluently in that language or in their native tongue, of never having wandered from the paths of truth. Possibly, however, these are the characteristics of all your students, and, if so, what wonder that the Leeds Medical School holds the high position which it occupies to-day.

The loss of his right eye was not the only serious accident which Hey received, for when he had just passed what Dante calls "the midway of the journey of life," being then 37, he injured his knee by striking it against the stonework of a cold bath. And soon after this he hurt it again by his horse falling with him. These injuries laid the foundation of a permanent lameness, and the brief clinical account given of it leads one to conclude that he was the subject of tuberculous arthritis. At any rate, the condition was a very serious one, for he was never able to get about, or to stand, without the help of a crutch. This, for a surgeon who was working from early morn till late at night, must have been a constant source of anxiety and hindrance. But he never grumbled, cheerfully accepting his trials as part of the divine will.

SURGICAL STATISTICS.

Though in hospital work and private practice Hey must have been a very busy operator, his list of operations would, in all probability, make but a poor show when placed by the side of the list of one of your surgeons of to-day, and it would surely be a valuable and instructive work if one of the younger surgeons of this infirmary could find out, from case-books and records, just what Hey's operative work was when he was travelling along the beginning of the latter half of the journey of his life. What an interesting study it would be. Did Hey, I wonder, careful and precise man that he was, keep a record of his private operations; would it be possible for us to learn something of his results in that field of work as well? At any rate, so far as I can discover, he published no statistics. There could have been little inducement for any surgeon in those dark, pre-Listerian days to show his figures for herniotomies and primary amputations, for they must have been (as we, at least, should now regard them) extremely bad. In Hey's time it was not the fashion for the surgeon to crowd page after page of the medical journals with parallel columns, the first giving the initials of patients who happily recovered from their operations, another with the names of those medical friends who had the privilege of being present at each operation—as assurance of good faith, as it were—and a final column with the vertical rows of "R." to give evidence of the inevitable recovery.

To you, as young surgeons, or as likely to become surgeons, let me give the advice to be shy of statistics in connexion with surgical work and the results of it. Do not be dazzled by other surgeons' statistics; do not place much reliance on your own. Except in the case of a practitioner of unusually rigid truthfulness, such as Hey, the compilation of tables-of-results is apt to induce a strange shortness of memory in connexion with *unsuccessful* cases. It is in the nature of man to forget the things that he has done amiss, or that he has not made up his mind to remember, and it is scarcely likely that he will be able to cast off this disposition when he is preparing his statistics. I fully admit that the recollection of my own unsuccessful cases slips from me more quickly than the other, and if I were a statistician I am afraid that my memory would get worse as I went on. House surgeons, surgical registrars, and assistants when speaking freely behind a surgical statistician, do not invariably accept the figures and results as compiled and displayed by the master-hand. And in such circumstances the compiler must sometimes feel half-inclined, I should think, to take those friends aside and make them promise secrecy, as Hamlet did after the interview with the ghost:—

> "Or by pronouncing of some doubtful phrase,
> As, *Well, well, we know*;—or, *We could, an if we would*;—
> Or, *If we list to speak*; or, *There be, an if there might*;
> Or such ambiguous giving out, to note
> That you know aught of me:—this not to do,
> So grace and mercy at your most need help you,
> Swear."

There is an old proverb that no man should hoe his own turnips. Turnips, you know, require plenty of space for their due growth, but, in the needful process of thinning, the man who sowed and who owns the tender plants can hardly be expected to have the heart to destroy the many in order to preserve the favoured few. But a stranger, whose own the plants are not, is ruthless at the hoeing, and the crop turns out the better in consequence. No man should hoe his own turnips: no surgeon should be allowed to prepare his own statistics. It may be putting him to too severe a moral strain.

COMPOUND FRACTURES; THEN AND NOW.

The list of Hey's major operations would be made up of, in addition to herniotomies and amputations, cases of the removal of mammary and other tumours, of diseased bone, of lithotomies, of operations on the rectum and of trepannings. Primary amputations formed, I expect, no small part of his work. In Hey's time, and for long after it, amputation was the ordinary treatment for severe compound fracture, the surgeon being induced to adopt it because experience had shown him that an attempt to save the limb would probably lead to erysipelas, to mortification, or to fatal blood-poisoning. It never crossed his mind that the risk of the occurrence of these terrible complications was due to the inoculation of micro-organisms which, thanks to the labours of Pasteur and Lister, the careful surgeon of to-day can render harmless. Hey knew nothing of germs, and if he had ever dreamt of them he had no microscope to reveal them.

And here let me remind you, as future dressers or house surgeons, that an enormous weight of responsibility will rest upon you in connexion with the efficient cleansing of the damaged area at the time of the patient's admission. You must use the very utmost of your intelligence and ability in making the tissues aseptic, swabbing out each nook and crevice so as to remove every possible septic micro-organism. You must set to work with an industry and determination like that displayed of old by the Children of Israel in clearing out every particle of leavened bread at the time of the Passover. (The metaphor is admissible, I think, inasmuch as the leavened bread had teemed with micro-organisms.) You are to do this part of your work exactly as you would like it done to yourself if your own leg had

just been crushed by a tram-car: that is to be the measure of your thoroughness. It must ever be borne in mind that the responsibility which rests with house surgeons and dressers in these circumstances cannot be over-estimated.

I daresay that some of you have never seen a primary amputation. If so, 'tis well. It shows that when the man with a compound fracture is admitted to the Leeds Infirmary the house surgeon and his dressers with razor, with soap and water and nail-brush, with turpentine, with syringe and carbolic or mercuric lotion, have been thorough in their preliminary treatment.

The labours of Lister have happily diminished the field of work of the operator in some directions, though have enormously increased it in others. Indeed, Lister has entirely altered the map of the surgical world. As the result of his work the old surgical gazetteers became useless. They could not be adapted for modern requirements, even by the most skilful editors. Nowhere is this seen more clearly than in the case of that great text-book—that standard work for students in my early years—Erichsen's "Surgery." The copyright of that book must have been a considerable source of income both to its illustrious author and to its publisher. It was read by nearly every student and referred to by nearly every man in practice. It was taken into the law courts, and it was quoted by every surgical writer. Its position as *the* authority in all surgical questions seemed to be for ever established. Then came the revolutionising work of Lister, and the well-known text-book, like the Great Auk, ceased to be.

The work of Lister has caused vasts tracts of this surgical globe of ours, which were previously covered with deep, unfathomed water, to become dry land. But for him there would in all probability be no surgery of the brain or of the spinal cord. The thorax would have remained a closed cavity. The precise, radical treatment of hernias, the conservative treatment of compound fractures, operations upon the blood-vessels and nerves, upon the joints, upon the liver and gall-bladder, upon the interior of the abdomen in general, and upon the inflamed appendix in the quiescent state in particular, could scarcely have been undertaken.

Mention of the appendix reminds me of a pithy discussion upon the cæcum which appeared in a book published in York when Hey was a very young surgeon. But I feel certain that Hey never read it, although it was written by a neighbour of his in holy orders. One of the chief points of interest in connexion with this report is, that though the anatomy of the large intestine is being discussed, no mention is made of the appendix. Was there ever such an omission? It would, of course, have been impossible at the present time, when public attention is so fixed upon the appendix, and when its disease is a subject of universal interest and conversation. We are told that the immortal "Tristram Shandy"—the book which contains the tailless remarks upon the cæcum—was unpopular in Yorkshire on account of its recognisable portraits of local characters, such as Dr. John Burton, a physician at York, who, as Dr. Slop, plays an important part in the volume. But I daresay that this great work of the volatile Yorkshire parson is at the present time not unacceptable to Leeds medical students, some of whom may, perhaps, remember the episode:—

> —I beseech you, Dr. Slop, quoth my uncle Toby, interrupting him as he mentioned the *blind gut*, in a discourse with my father the night my mother was brought to bed of me—I beseech you, quoth my uncle Toby, to tell me which is the blind gut; for, old as I am, I vow I do not know to this day where it lies.
>
> —The *blind gut*, answered Dr. Slop, lies betwixt the *ilion* and *colon*.—
>
> —In a man? said my father.
>
> —'Tis precisely the same, cried Dr. Slop, in a woman.—
>
> That's more than I know, quoth my father.

Had Laurence Sterne been writing at the present day upon the cæcum it is practically certain that he could not have avoided moralising upon the appendix, and probably he would have depicted it somewhat in the manner that he did the extraordinary flourish of the corporal's stick.

HEY'S "SURGICAL OBSERVATIONS."

You may have noticed when I was pointing out the large tracts of the body which had been rendered accessible to surgical enterprise, that though I alluded in a general way to operations upon joints, I said nothing about the direct treatment of loose cartilages in the knee as made safe by the adoption of Listerian methods. But how would it be possible for me at Leeds to refer to this subject without making special reference to the pioneer work done in that particular field by William Hey?

You are, some of you, at least, aware that when the nineteenth century was but a few years old Hey published a large volume which embodied much of his professional experience. The title which he gave it was "Practical Observations in Surgery," and I can assure you that it is well worth your careful perusal. But, first of all, please note this:—Hey was born in 1736, and he published his work on Surgery in 1803. He was, therefore, 67 years old before his book appeared. He evidently wrote *from* practice: at the present day it is quite customary for the author to write *for* practice. (The difference is in the preposition.) Open the book where you will and you drop upon a page which is full of interest and instruction—from the first chapter, on Fractures of the Skull (with illustrations of his well-known saws), to the last chapter, upon a Tumour of the Nose. But the subject with which I am now concerned is that upon Internal Derangements of the Knee-joint. It was Hey who first described this condition, and who gave it the name. He said that the complaint when recent, admitted of an easy method of cure, but that it might become "a serious misfortune," and he speculated on the association which it might have with an abnormal state of the crucial ligaments or of the semilunar cartilages. Had he lived in these days of aseptic surgery, he would have had the opportunity—in some of these cases in which the derangement had become "a serious misfortune"—he would have had the opportunity, I say, of opening the joint with the view of confirming his diagnosis, of removing the erring cartilage, and of restoring the limb to its former usefulness. What a revelation it would be to him, could he come back, to see how marvellously well these operations turn out. And what a satisfaction to him to find that what he had written on the subject had stood the test of time and of close investigation, and that the chapter which he so modestly wrote in his "Practical Observations" was still held in high and respectful esteem. The narration of his cases is brief and clear and entirely free from that atmosphere of charlatanism which is apt to surround the so-called "bone-setting" treatment of to-day.

PROFESSIONAL ETIQUETTE.

There is one point in his narration of cases which strikes one to-day as being very peculiar—he published the names and even the addresses of his patients! One of them appears as "the late William Sotherton, Esq., of Darrington." Another was "the honourable Miss Harriet Ingram (now Mrs. Aston)," and a third was "Master Thompson of Hull," a naughty boy, "a pupil at the late Mr. Hodgson's academy in Leeds," who inwardly deranged his knee whilst hanging on behind a post-chaise. What would our Colleges say now to a member who took such liberties with the names of his patients? Rightly they would reprimand. Indeed, so strict has professional etiquette become in connexion with the publication of advertisements, puffs (direct and oblique), bulletins and notifications, that there is now little left which the consultant can safely do beyond announcing under the head of "Fashionable Intelligence" in the *Times*, or *Morning Post*, that he "has returned to his house in such-and-such a street" (number given, for the guidance of possible patients). Customs change; and you may know quite well that 100 years ago it was not considered a breach of professional etiquette to mention the name of a patient, or our William Hey, than whom no man more straight and upright ever lived, either in or out of Leeds, would not have done it.

OPEN-AIR TREATMENT OF PHTHISIS.

A considerable number of Hey's children had already fallen victims to consumption, when, in 1813, greatly to his grief, his son William was attacked with hæmoptysis. In these days of the open-air treatment of tuberculosis, a reference to this son's attack will prove interesting. During the first winter of his illness young Hey had been shut up in a warm room, and at a uniform temperature, without any apparent benefit. After this the disappointed father got into correspondence with a Dr. Stewart, of Erskine, near Glasgow, with the result that the invalid was sent into Devonshire for the autumn and winter to take "much exercise in the open-air." He also went in for sea-bathing and cold washings. The sudden and complete change from the old plan was attended with the most beneficial effect, for his health was restored, and he was enabled to come back to Leeds to give his father that help in his professional work which he so greatly needed. This, I should think, is one of the earliest testimonies extant of the value of the open-air treatment of tuberculosis, and its adoption in direct

opposition to all preconceived ideas gives ample evidence both of Hey's mental receptivity and of his courage.

THE MEDICAL EDUCATION OF TO-DAY.

From the intimate acquaintance which I have with William Hey and his work, I feel convinced that if he could come back for a day or two and follow you about, he would say in language as emphatic as his strict principles would allow him to use, that the present system of medical education was bad, and that he was right glad that he was not a student at the beginning of this twentieth century. And I feel equally sure, that if he had been brought under this system, Leeds would have been robbed of one of its most worthy sons, and English surgery of one of its brightest luminaries.

Hey was enabled without any interference to devote the whole of his first winter absolutely and entirely to the practical study of anatomy. He seldom spent less than 12 hours a day at anatomy, which he considered as the foundation of surgical science. Think of it, 12 hours a day at anatomy. You would consider yourselves fortunate, I dare say, if you could manage to secure three hours on end in the dissecting room—and even then you would probably be tempted to leave off in the middle of your interesting work in order to attend some demonstration, for you have been brought up in the belief that the knowledge of anatomy is best acquired by being *taught* it. This was not Hey's opinion. He was a practical anatomist at the beginning and always, and when he became a practical surgeon he still kept a close hold upon his anatomy. His biographer writes:—"The value of his acquirements in anatomy was more sensibly perceived by him every day; for he was aware that no one can be competent to perform operations who is ignorant of the structure and relative situation of the parts affected." I feel sure that Hey would have insisted that no one should undertake operative work unless he were a good practical anatomist. How necessary, then, would he consider a close study of anatomy in the case of the student of to-day. For there never was a period in the history of surgery in which so much operative work was done as at the present time. Operations appear so simple and so safe. All that seems actually to be requisite are plenty of hæmostatic forceps, some carbolic lotion, and a patient on whom to operate. On the part of the operator but few qualifications are apparently needed—surgical ambition, fearlessness, and a spirit of enterprise. Anything else? No, not as a general rule. A sound, practical knowledge of anatomy? A long training in operative work? A thoughtful study of contemporary surgical literature? Apparently, *no*.

Are you amongst those, I wonder, who have said to themselves, "When I am in general practice I mean to do all my operative work myself. Why should I pass it on to anyone else?" Well, if so, God help your patients! You may be bold and enterprising to the last degree: you may have cardiac sclerosis as badly as Pharaoh had it when he refused to let the Children go. You may have acquired a rudimentary knowledge of anatomy, and you may possess the blind confidence of a considerable number of patients, but all this ought not to justify you in launching out on the stormy seas of operative surgery. You must have had in addition the *training* which is needful for the work. Things do not always go right in operations, even with the most experienced surgeons, the anxiety which is felt in such circumstances being often intense. And I cannot think that the man in general practice is wise in accepting the risks of these anxieties, or in exposing his patient to the chance of their occurring in his comparatively inexperienced hands. More than this, the general practitioner has already plenty of anxieties of his own. Of course, as general practitioners you will be called on from time to time to do emergency operations. The patient with a strangulated hernia, or with a ruptured artery, cannot be left. But let me beg of you to be content, as general practitioners, to put a curb upon your ambition. Do not leave the Leeds School of Medicine with the erroneous impression that because you have seen your surgical teachers patiently, and without apparent difficulty, remove from a man's neck a cluster of lymphatic glands which have been invaded by tubercle or cancer, or successfully relieve another of an impacted gall-stone or a renal calculus, the operation is a simple one, and such a one as you would willingly undertake. Better, by far, go straight to Lord Hawke and offer yourself as a substitute for Mr. Jackson or Hirst in his well-organised team.

For the young practitioner who is about to embark on his life's work, operative surgery has naturally a great attraction. So has the light of the beacon for the migrating birds which are just starting for their long journey into the unknown. But in the case of the birds which dash against the prisms it is they themselves who have to stand the shock, whilst in the case of the surgical dasher it is the other who is the victim!

Pearson's biography of Hey, from which I have been quoting, is a tedious work, bringing in an enormous amount of history which is not of particular interest, especially in connexion with the religious opinions of this devout and, perhaps, austere man. But there is one page of unusual interest and importance to which I would like to direct your special attention as well as that of your teachers—if they will permit me to do so—and also that of those who control our system of medical education. Hey was a most strenuous worker and a most successful one. He knew exactly how to set about his studies, how to pursue them, and how to obtain the greatest advantage from them. "Being aware," says his friend, "of the disadvantage of engaging himself with a multiplicity of objects at the same period, it was his method to direct his *principal* attention to one subject at a time without, however, absolutely neglecting others when his leisure would permit." That is to say, when he was working at anatomy he might, if he could spare the time from it, attend a lecture upon some outside subject. Had he been living at the present time the dean of his medical school would be told that he was not working at practical chemistry, or physics, or histology or some other subject, or that he was not attending a course of lectures which absolutely failed to interest him, and from which, perhaps, because of his own peculiarity, perhaps because of some defect in the lecturer, he was unable to learn anything. If Hey had been a student at the present time he would have been strangled by the red tape with which he would find his course hampered.

As a student I was not remarkable for the regularity or assiduity with which I attended lectures, though I always managed to get "signed up." But as I look back upon my student days (they were very happy ones) I grieve over the time which I was compelled to waste in sitting through lectures in which I was neither an interested nor a welcome attendant. Remembering all this, when I became a lecturer on anatomy in my own medical school, I never took a student to task for not coming to my class, so long as I knew that he was steadily working in the dissecting room. But I tried hard to make my teaching useful enough to attract him. As regards lecturing and demonstrating I am an out-and-out free-trader, and hold that if a lecturer cannot fill his class room by the worth of his own teaching it is absurd for deans of schools to force the students in, merely that they may be "signed up." It is worse than absurd, for it entails a wicked waste of valuable time. I have heard steady, honest, hard-working students say that they were unable to learn their work from lectures—but in they had to go, like children at a Board school. Surely, with so much work to be accomplished, no time should be wasted. What I beg for is greater freedom for the individual. The dean of the school should make it his business to know that each student is doing his best to acquire knowledge, but he should be allowed to acquire it in his own way; his examiners may be trusted in due course to find out if he has his proper weight of knowledge.

The University of London years ago gave the lead in this style of education. It did not insist that every candidate should attend every course of lectures. It insisted, for instance, that, before a candidate entered for his intermediate examination in medicine, he should give evidence of his having regularly attended *certain courses* of instruction, the choice being left to the candidate. What the more liberal University wanted was to know that the candidate had been regularly working at a few subjects, and they would do the rest. Which they did. Medical students are like young horses, and in the course of their training they show individual differences which should be duly taken into account by the skilful trainer. Do you happen to know that the horse which won the Derby in 1893, Isinglass, was prepared for that race almost entirely by *walking* exercise? Jewitt, his trainer, recognised his peculiarities, and judiciously refrained from schooling him on rigid lines.

FAILURE AT SURGICAL EXAMINATIONS.

A few months ago, the President of the Royal College of Surgeons of England, Mr. John Tweedy, called attention to

the fact that students were not acquitting themselves as satisfactorily at their final examinations in surgery as was formerly the case, and he said that he regarded the matter as worthy of serious consideration. He asked if any explanation of the fact were forthcoming, and if anything could be done towards remedying the defect. His question has been much in my thoughts whilst I have been preparing this address. I propose, therefore, to enter somewhat fully into its consideration, hoping that, possibly, some good may spring from it.

If examiners are not satisfied with the knowledge shown by surgical candidates, the fault must lie either with them or with the candidates. I am going to assume that it rests with the students, and with the way in which they have been preparing themselves for the ordeal. In the first place, they are not *practical*. They fall lamentably short in their clinical work, up to which, I need hardly remind you, their entire educational course is supposed to lead. Their clinical knowledge is eventually to be their chief asset in the conduct of the affairs of their daily professional life, for the training of the medical student is not to make him a biologist, a chemist, a physicist, or even an anatomist, but to teach him to recognise disease with the greatest precision, and to deal with it with the greatest satisfaction to the sick people under his care. Now, I have no hesitation in affirming that, in these respects, the training of the medical student of to-day is not nearly as thorough and efficient as it was in the time of William Hey.

When Hey was one-and-twenty he went to London "to complete his professional education," for in the old days of "apprenticeship" a great deal of the practical work was done before the theoretical. I am not going to uphold that system: to go back to it would be as undesirable as impossible; still the system was not altogether bad, for it made a man quick, handy and resourceful. It enabled him confidently to recognise and to treat a fracture or dislocation, and to apply a splint and a bandage in a manner which would, I expect, put most of you to shame. The student of former days could bleed a man, and he could pass a catheter. He might, in fact, be trusted to do every operation in minor surgery long before he had begun to think of his final examination. If you scornfully retort that he used to do his operations with dirty hands, I will admit it. It was not his fault, however, that he lived in the unenlightened days. If you still make a point of it, I will say that your righteousness is suggestive of that of the Pharisees. To-day we hear a great deal about the washing of hands, and of cups and platters, and this absolute surgical cleanliness is, of course, quite right. But some students and other people apparently wash their hands only when they are about to operate, or to help in some surgical operation! My old dressers would tell you that I used to pay occasional surprise visits to hands and nails, and that I would not overlook or permit the cigarette-stain which is so often seen upon the fingers of the modern smoker. It is a variety of dirt.

But to return, no proper equivalent has ever been devised to take the place of the apprenticeship, and every year, it seems to me, the student's training is becoming less practical. We hoped that the "fifth year of study" was going to make good some of the deficiencies left in our scheme of education, but we have been grievously disappointed.

Some of you, I daresay, when travelling on a diligence in Switzerland, have wondered how your team of four horses would manage to get the heavy vehicle up a steep bit of road; when, to your relief, an additional horse has been brought out and hitched on to the team, after which, all has gone well. But if this extra horse had been tied by a halter to the back of the coach you would have wondered at the woful waste. And this is very much what has been done with "the fifth year." They have attached it at the wrong end of the scheme, and if they have not permitted it actually to be wasted, at any rate they have not insisted that it should prove of the great value in medical education which it was expected to be. I hold the General Medical Council to blame, in that instead of seeing this fifth year devoted to the *practical* education of the senior student in medicine and surgery they have allowed it to be scrambled for, and seized upon, by the teachers of chemistry, physics, and biology.

Just now I ventured to liken the career of the medical student to a four-horse diligence going up a difficult bit of road with a spare horse tethered behind. I will now, if you please, harness this fifth horse to the front, and we will take a look at the cumbrous machine as it lumbers along. What strikes us at once is that the vehicle is overloaded. One subject after another has been piled up on the roof until progress has become tedious, painful, and disappointing. It was pleasant travelling in the "seventies." It was safer and more satisfactory. The centre of gravity of the educational vehicle was not raised (as is now the case) to an absurd and giddy height, and we travelled securely. Of late, so long as there seemed to be a scrap of room, every teacher, one after another, has insisted upon his own bit of "stuff" being added to the load—"Lectures and Practical Instruction in Pathology"—in bacteriology, pharmacology, and Public health—these have all been piled upon the top of Biology, Elementary Pharmacy, Chemistry, and Physics; practical instruction in Vaccination; and in making post-mortem examinations during 12 months; instruction in anæsthetics; yes, all these are amongst the impedimenta. "And now find room," says the ophthalmic surgeon, "for three months' work in my department," and in "attendances at a fever hospital" says another. Lastly, and not inappropriately, the Colleges insist on the bewildered student entering a lunatic asylum!

I should be sorry to be a medical student now. His educational lot is not a happy or healthy one. He is not encouraged to *learn*. He is always being *taught*. From the moment that, in his first year, he sits down in the biological class-room to ponder over the chemical composition and properties of protoplasm, and to worry the amœba, until the time when he is taken in charge by the "coach for the finals," he is never left alone.

SURGICAL VENEERING.

Students are depending far too much upon classes and upon coaching for learning their professional work. They seem to think that time spent in steady work at the bedside and with the patient might be more profitably employed in some special form of tuition. I regret to say that year by year they are coming less into direct personal contact with patients. They listen to demonstrations on cases, they discuss the problems of disease with their tutors, and they occasionally attend a clinical lecture, but their work with the patients themselves seems every year to be diminishing. The result is that they fail lamentably in the clinical part of their tests. They do not know how to set about investigating a case with a view to diagnosis. They do not understand, for instance, how to handle a case of hip-disease and still less to estimate the amount of deformity at the joint. They do not know how to investigate a case of infantile paralysis, and many of them seem to have had no personal experience with the translucency-test for hydrocele. All these methods of procedure are in daily use in the out-patient department and in the wards, where the senior students ought to be spending most of their time. But they are not there; they trust to acquiring a minimum clinical veneer by diligent attendance at the "college-class." They tell me that they have not time for work in the wards!

In the course of a *viva voce* examination in surgery, with the object of making it a personal, living matter, and of getting a practical answer from the candidate, it was often my custom to introduce a subject thus:—"You have seen a case of so-and-so?" Then, on the candidate saying, "Yes," I would ask him to describe the case and the treatment of it, just as if we were looking at it together in the hospital ward. But of late I have had to give it up, because of the frequency with which the reply was to the effect that the candidate had "never seen such a case." The well-meaning plan constantly led to disappointment, for, having been told that the candidate had never seen such a case, I had to drop the subject altogether and hurriedly supply another. It is disheartening to an examiner to be told, for instance, that the candidate has never seen a case of infective osteomyelitis. And it is disconcerting, when one has in one's mind's eye a vista of three or four minutes' questions on some particular subject, suddenly to be compelled to start something else—for obviously one cannot expect a candidate to give a first-hand account of something which he has just confessed he never saw!

I can quite understand that a student has never seen a patient with erysipelas, or delirium tremens, for such cases are now promptly taken from a general ward and placed in beds which are, unfortunately, far removed from the student's sphere of exercise. And I can realise the fact that he may never have seen a case of pyæmia, or of traumatic

spreading gangrene, for the simple reason that surgical cleanliness has made such diseases—common enough in my student days—of comparative rarity. But the cases to which I refer are such as one constantly finds in a general surgical ward—"What, never seen a man with extravasation of urine?"—"No." "What, never seen a case of renal calculus?"—"No." What is the conclusion to be drawn assuming—as I have every reason to do—that the men were truthful? There is only one explanation available, which is that at the present day students are not spending nearly as much time in the wards and in the operating theatre as they ought to do. And, believe me, there is no other place in which surgery can be learnt.

Ask any of your surgical friends who were students in the "seventies" and "eighties" if they found time for making a practical acquaintance with surgical cases, and you will probably be told that they spent a couple of hours in the wards in the morning with the house surgeon, and that they were there again, and in the operating theatre, for another two hours with the surgeon of the day, not only when they were dressers but subsequently also, and that on many days they were hanging about the surgical department of the hospital until late in the evening. I have no doubt that many of you would like to adopt that plan now, and that you would adopt it if you were a little more masters of your time. But you reply that you have not time enough for all that you have to do.

"Not sufficient time," says the student of former days, "Why, the General Medical Council have given you a fifth year of study; we had but *four* years!" Yes—but it has turned out a bitter disappointment. It has considerably increased the expense of medical education, but it has missed its mark entirely. It ought to have been made "the practical year," but the authorities have allowed it to be frittered away, and for all the practical good that the student obtains from it, he might as well be at school.

With the view of improving the present system of medical education, I would ask, first, that the standard for chemistry be placed at a reasonable level. And, next, that the student may be freed altogether from what the authorities are pleased to call "elementary" biology. With so much serious work in front of him, it is a real waste of time and energy for the youthful student to make himself master of the working of "the genito-urinary systems of the dog-fish and the frog"; his future studies in physiology will embrace all this and a vast deal more, and it will all come in due course.

EDUCATIONAL WASTAGE.

There is a great deal of truth in the cry, "not sufficient time," and I am sorry for the students who are constrained to make it. Medical students are not idle and careless and they do not complain without cause. They are a steady-going, industrious lot. They work hard and they play hard. In a medical school there may be one or two loafers, who are no good at work and no good at sport. The dean knows them, and he ought to weed them out, for their presence is as harmful as that of streptococci in an incised wound. But the bulk of students work far harder than we did in my student-days. Of that I am quite sure. One of the chief reasons for students not having sufficient time for practical surgery is that many of them have been kept back by their chemical work. The present examinations in chemistry for medical students suggest that the examiners are under the apprehension that chemistry is going to be the chief occupation of the individual when he is in practice. As a matter of fact, chemistry is but a comparatively unimportant incident in his career, and so it ought to be regarded. It is much the same with physics. But the standard of the medical student's examination in those subjects has been gradually screwed up until it has attained an absurdly disproportionate height, and the sooner that it is placed at such a level that a student of ordinary intelligence may, after an ordinary amount of study, stand an ordinary chance of passing his examination in them the better.

THE WANT OF PRACTICAL KNOWLEDGE.

The present system of education does not give students sufficient freedom as regards the acquisition of knowledge. It comprises the employment of a sort of educational Procrustean bed on which each individual student must lie, and to the length of which he must be made to adapt himself either by a process of stretching or lopping. The General Medical Council have already accomplished so much in the cause of education that it is not improbable they will ere long see fit to make some change in the direction of greater freedom, and one which will help towards securing for the student an increasing store of *practical* knowledge. But please do not imagine that in the meanwhile I would wish you to agitate for greater personal freedom. All will come in time. There is the law; and you as good Englishmen are bound to obey it. You will not improve matters by discovering that you entertain conscientious objections to it, or by offering to it even a passive resistance. Though I have, perhaps, already alluded sufficiently to the fact that the present system of medical education grievously fails to evolve you into competent practitioners, I must make a notable exception in the case of those who have have had the good fortune to hold the post of house physicians or house surgeons. The importance of these appointments cannot, indeed, be over-estimated, and you will do well to make it your chief ambition to secure one or more of them.

On all sides I hear complaints of this want of practical knowledge on the part of those who have recently obtained their qualification. Thus, a general practitioner finds himself in need of an assistant, and he applies to some friend upon the staff of his old hospital to send him a likely man. In answer to this application one of the most promising students is sent, one, may be, who took the prizes in biology, chemistry, medical jurisprudence, and materia medica. But in a little while the practitioner writes to say that the so-called assistant is no help whatever. That though he is an adept in the art of prescribing drugs of doubtful value but of undoubted expense, he knows, practically, nothing of his profession. That he cannot be trusted in anything; that all his work must be closely supervised, that his diagnoses are as extravagant as they are improbable; and that though he can talk eloquently about Bassini's operation he cannot diagnose a simple hydrocele. That he mistakes scarlet fever for measles, and swollen cervical glands for mumps; that he treats the diarrhœa of intestinal cancer with chalk and opium (without ever thinking of making a digital examination of the rectum), and that he applies a fomentation to the painful knee of a boy with early hip-disease.

Well, gentlemen, what you have to do is to get through your preliminary science examinations as quickly as possible in order that you may the longer and the more continuously occupy yourselves in clinical work. Let me urge upon you to attend regularly in the out-patient department, and never for one moment to fancy that you are wasting time and opportunities because so few of those applying for relief are the subjects of diseases of an unusual type. I can assure you that when you get into actual practice the experience thus acquired will prove far more serviceable to you than that which has been obtained in listening to clinical lectures upon certain rare cases or, may I say it, than the instruction which you obtained in special classes.

THE "COLLEGE CLASS."

As things are at present the dreaded examination becomes due before the candidate is ready to meet it. He feels that he does not know his work, but he is under the impression that the most likely way of leading his examiners to think that he does is by obtaining a surgical polish at the hands of an experienced "coach." So he joins what is called a "college class." The director of this class is probably an able and energetic young surgeon who has already acquired considerable reputation both as a student and a teacher, in addition to which he is possibly regarded as an astrologer of some merit. That is to say, by making a prolonged and careful study of the past examinations, he has acquired the art of guessing what questions are going to be set at the forthcoming one. He has, in other words, elaborated a "system"; which sometimes works out with extraordinarily good results.

WRITING A PAPER.

The literary style imparted by certain coaches (if I see it correctly reflected in the paper work of their pupils at examinations) is not a high one. For a very favourite method of writing an answer to a question consists in drawing one or two straight lines vertically down the folio, and inserting in the respective columns the symptoms of one disease as compared with those of another, or the headings of the schemes of treatment appropriate for them. This method is constantly recurring in answer to questions involving differential diagnosis, the columns being as destitute of verbs as are the pages of an auctioneer's catalogue. I do not know how this method originated, but I

rather think that certain coaches in the endeavour to impart knowledge, exact and concentrated, plan out their teaching in this manner upon a black board in front of the class. It is a method which I mention merely to condemn. It is science in the tabloid form.

Another style of answering questions at the written part of an examination is by starting with headings, A, B, C, and D, and subheadings α, β, γ, δ, after which the causes, symptoms, or whatever they may be, are numbered 1, 2, 3, and so on. Needless to say, most candidates become hopelessly lost in the maze of headings which they have thus prepared. Some of the answers would, so far as literary merit is concerned, scarcely reflect credit upon a boy from a Board school, and I regret to say that such are occasionally met with in examinations for the highest qualifications in English surgery. I can assure you that time spent in learning how to write a paper is well spent. If you have written a good paper you go into the *viva voce* part of your examinations with some spare marks in hand, which may prove of the utmost service to you when the general results are being added up. Let me, therefore, impress upon you the importance of acquiring this simple but useful art without delay. And, having done so, you will find it of service long after the anxious times of examinations have passed by. And if I might presume to address a few words to tutors and "coaches," I would say that unless they themselves write decent English they can hardly expect to impart the art to their students. And if they deign to inquire to what source I would refer them for style, I would say, the Gospels, the "Pilgrim's Progress," and the "Sentimental Journey."

In connexion with the subject of English composition and medical education, let me refer to something which was written by Benjamin Bell in an address which he gave before the Harveian Society of Edinburgh upon the life, character and writings of William Hey. He said, "Hey had the gift of telling his cases in such a way as to make the reader interested in the individuals of whom he wrote. ..... The mere mention of a few incidental circumstances not absolutely essential," he continued, "takes away the character of baldness from the narrative. Cases detailed in this way are read more cordially, and make a more lasting impression, than the cold items, fit only for statistical tables, which we too often meet with in the present day." Bell wrote this in 1867, but I think you will agree with me that his opinion would stand incontrovertible in 1904. As you, my friends, are going to be amongst the medical writers of the future, let me beg of you to listen to Bell and to do your best towards paying the tribute due to style. There should be an honest attempt at style even in your ward-notes. This will be a beginning. And, so, later, when you are preparing a full account of your own extraordinary success in the treatment of a series of medical cases with some new and fashionable drug (and you must be quick about it, for new and fashionable drugs are soon found to have lost their efficacy), or some wonderful results obtained in operative surgery, take pains with the preparation of your paper, and if you cannot make it attractive, at least make it readable—and not too long.

In here quoting Benjamin Bell's advice with approval, let me make myself clear about those "incidental circumstances" to which he referred, which though not essential, are to brighten up your article—I quite understand that he does not mean that you are to drag in such things as Tristram Shandy or Corporal Trim, or even the Children of Israel and unleavened bread. But what he means is, or, at any rate, what I take him to mean, is that you are to make your essay show that it is written by a living Englishman upon living patients (you will probably find that you will not write much about the dead ones), and by one who has been at the trouble to make it concise, bright and clear. The current style of English medical literature is, for the most part, tedious to the last degree, and now that dear old Mitchell Banks's pen is for ever dry, there are few to brighten the columns of our journals and to charm the reader.

By the present scheme of education far too much *teaching* enters into the daily life of the medical student. He is lectured to, catechised, and crammed until a sort of intellectual dyspepsia is induced in him, and he is unable to *learn*. Moreover, from want of proper mental exercise, he has almost lost the desire to learn. All his intellectual food is served to him hot, finely divided, and peptonised. His wisdom-teeth are of no further use. He goes up for his practical examinations at regular intervals, and he comes back rejected. "Poor fellow," say his friends, "how unlucky he is! He certainly deserves to pass, for he is such a steady worker." Eventually they come to the conclusion that there must be something wrong with his examiners or with the examination. But, believe me, the failure in our surgical examination work, to which Mr. Tweedy has called attention, does not rest with the examination, but in the unsatisfactory scheme of education which darkens the approach to it.

THE CASUAL MANNER.

The teaching which students receive in surgery is usually revealed at their examinations, and I am often astonished at the way in which they acquit themselves. They approach the subject in a casual and irresponsible manner, and one cannot avoid the conclusion that much of their surgical training has been carried out in a way which was lacking in seriousness, their clinical work being suggestive of the class-room rather than of the bedside. The other day a hospital friend of mine, a man of great experience both as a teacher of surgery and an examiner, told me that when he was questioning a candidate as to the situation which an inflamed appendix is likely to occupy, he was answered that "the one o'clock position" was the most probable one. After the examination my friend asked me if I understood what the candidate meant by an answer which to him was quite unintelligible. I explained to him that some ingenious surgeon taught his class that the appendix, swinging round on its basal attachment, might occupy almost any position. And that, in order to impress this upon his students, he had depicted a large watch-face, showing that when the appendix was pointing towards the spleen it was in the "one o'clock position"; that when it was hanging into the pelvis it was (if I remembered rightly), in the "five o'clock position"; and that when it had swung round so as to point towards the right kidney it would represent, according to his chronology, the "eleven o'clock position"! My friend once more expressed his surprise, and remarked that it would be more in harmony with the serious nature of the things dealt with, if anatomical facts were expressed in precise, anatomical language.

A great fault of the surgical methods of to-day is a peculiar irresponsibility and carelessness, and from the fact of its being somewhat general I am inclined to think that it is popular in more than one of those class-rooms to which the students resort for their surgical veneering. It is certainly not acquired in the ward, in the out-patient-room, or in the lecture theatre. Let me give you just two examples of what I mean. I was asking a candidate to describe the operation of herniotomy as he himself would perform it, and his description ran thus: "Then you enlarge your wound and expose your sac," and later, "Then you separate your omentum from the wall of your sac." I maintain that when a candidate is asked to describe his method of treatment he has no right to use his second personal pronoun. Possibly you may say that I am over-particular. I do not think so. When I have put my question I want the answer to suggest, as it were, the candidate performing the very operation step by step. That was the way in which he was taught by the side of the surgeon in the operating theatre when he was a dresser, and it was the way in which it was described to him in work upon the cadaver. But the chatty, colloquial use of the second personal pronoun is, I feel convinced, the method of the class-room. Another sample of the class-room method of work is this: I was asking a candidate to describe the early stages of a certain disease, and, blundering on in his careless, irresponsible manner, he said, "and then your inguinal glands become enlarged, and you break out in secondaries!" When I asked him to be somewhat more impersonal in his reply, he quickly went back to the use of the second personal pronoun, and did not leave me until I was a hopeless physical wreck!

"Oh," says the candidate at the clinical part of his examination, in answer to the question as to what treatment he would advise in a case of diplococcic disease of the knee-joint, "you might try" (notice the pronoun and the auxiliary verb) "Scott's dressing." When asked what Scott's dressing is, he has not the least idea. Asked how he would treat a case of mammary carcinoma with widespread implication of the cervical glands, he replied, "*You* might remove the breast!" Ought a man who talks like this to be trusted in actual practice? But his rejection surprises him. He assures his sympathetic friends that he wrote an excellent paper, and that he did well everywhere, except that he did not get on quite happily at his "clinical," though, as he "spotted" all his cases, he cannot see how it was that he was rejected

there. And this man may have been one of the brightest ornaments of his college class, in the language of which he could on every occasion talk fluently, but he has come to grief because he has allowed the work of the class-room to take the place of work in the wards.

I have almost done with the surgical veneering establishment, but before I leave it I would like to nail up on the door the word *trauma*. It is as un-English as a word can be; yet of all words it is the most beloved by the senior student. It means merely a wound or a hurt, yet to the advanced student it is apparently as full of blessed signification as was the word Mesopotamia to the old lady.

I do not condemn altogether the, so-called, college classes, and the special-instruction classes. Possibly the system of education and the exigencies of examinations have rendered them almost a necessity, and it may be that, to a limited extent, they perform a useful function in our schools. But what I must insist on is that students ought not to be encouraged to place as much reliance on them as they do at present. Though they may help a man to scrape through an examination, they ought not for a moment to be regarded as the chief means of obtaining the minimum amount of a working knowledge of surgery likely to satisfy official tests, and still less of equipping him for actual practice. But I regret to say that of late years it has become too much the custom for the hard-pressed student to desert orthodox clinical methods, and to consider as their equivalent, if not their superior, the cram-classes of the surgical coach.

An important piece of advice which I have to give you, senior students, is to visit the dissecting-room as much as you can. Of course you will be unable to do this during your dressership, but when this is over make a point of going there every day. Put false pride in your pocket; attend demonstrations, and read up from the parts. That is the only way of keeping hold of your anatomy. And, having done this, you will feel no alarm when your examiner gives you a blue pencil and says, "Now, Sir, mark out the course of this man's great sciatic nerve, and explain to me how you would expose it for stretching."

Thus, there are three things which you must keep in front of you if you wish to do your best for the reputation of the Leeds School of Medicine at surgical examinations:—

First, you are to work constantly and seriously in the wards and in the out-patient departments, in the full assurance that there is no other way of learning to become a surgeon.

Second, you are to get your tutor to teach you how to write a paper. This he will best do by giving you every now and then one question—but not more than one at a time—to answer within the period of half an hour, that being the time which is usually allotted for the task in actual warfare.

Third, you must go regularly over to the school in order to keep hold of your practical anatomy.

HEY'S GREEN OLD-AGE.

In his seventy-seventh year Hey resigned the surgeoncy to the Leeds Infirmary. He had been on the staff for 45 years, and for no less than 39 years as its senior surgeon. Able as he was, and valuable as his services were to the Infirmary, one cannot think that it could ever be desirable for a surgeon to hold office for so long a period. As a man increases in years, his mental as well as his physical elasticity diminishes, and if his line of work happens to be surgery the sooner that he gives up, the better for his patients as well as for his own reputation. It is as easy for an operating surgeon to outlive his reputation as it is for a *prima donna*, and it is far better that he should anticipate it, than that the realisation of the fact should be forced upon him from without. There ought to be an age-limit for services at every hospital, and in the interest of younger men who are waiting to earn a reputation, there should be, in addition, a length of service-limit independent of age.

And when a hospital surgeon has begun to think that, for one reason or another, the time has come for him to withdraw from active work, he should do it—not be like the *prima donna*, threatening, withdrawing, and reappearing. But he should gracefully retire, once and for all. But he should not let it go forth, that, though he will no longer undertake operative work, he will be prepared to "advise" in cases where the question of operation is being considered. A surgeon who is not himself an operator is not a fit man to advise in such a crisis, for, on the one hand there is the risk of his growing into an authoriser of unjustifiable operations, and, on the other, of his being blind to the advantages which the most modern surgical methods are able to supply.

On Hey's retirement the governors of the infirmary passed him a very graceful and appropriate vote of thanks, in which they called him the "parent of the institution," a title of which, doubtless, he was extremely proud, and of which, in consequence of the brightness with which the lamp of surgery has been kept burning ever since in Leeds, he would be just as proud to-day could he once more visit the Infirmary and its Medical School. In March, 1819, at the age of 83 years, he had had a busy professional day, having been called, in addition to his regular work, to visit patients 10 and 12 miles from Leeds. In the course of the night he was attacked with shivering, and a few days later he died. But his name and his reputation must live so long as Surgery is studied as a science or practised as an art. Hey was what would be called at the present day "a wonder." At the age of 82 years he could read and write without glasses, and except that his memory was not so good as he would have wished, he could, to use his own words, "enjoy life as much as ever." But perhaps one is less inclined to express surprise at all this, when one remembers that he was a Yorkshireman.

An Address
on
THE TREATMENT OF LUPUS VULGARIS DURING THE LAST 25 YEARS.

Delivered before the Fifth International Dermatological Congress, Berlin, September, 1904.

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GENTLEMEN,—The work of a congress must always be to a certain extent retrospective; the review of what has been accomplished at a given time in the special field of knowledge which we cultivate enables us more clearly to see what still remains to be done. The treatment of lupus vulgaris, notwithstanding the great attention that has been given to the subject by earnest workers throughout the world, is one of the practical problems of dermatology of which a completely satisfactory solution has yet to be found. During the quarter of a century that I have been engaged in the special study of affections of the skin I have witnessed many changes both of opinion and practice in regard to lupus vulgaris. During that period the researches of Koch have modified our conception of the origin and pathological processes of the disease, while the discovery of new methods of applying physical agencies has almost revolutionised its treatment. Our therapeutic equipment for dealing with lupus vulgaris is at the present day as different from that available 25 years ago as the guns and torpedoes which are used with such terrible effect in the present war differ from the armament of a battleship in the days of Nelson. It must, however, be admitted that our means of cure are still far from possessing the precision and efficiency of modern instruments of warfare for destruction.

Before proceeding to give a brief record of my experience in dealing with lupus vulgaris I may be permitted to say that I have given the principal new methods which have come before the profession with adequate scientific credentials the fullest and fairest trial. I have treated my cases in the spirit of Lord Strafford's principle of "thorough." I have scraped, scarified, burnt, applied caustics, injected tuberculin, used light and the x rays, given thyroid and urea, fed my patients on raw meat, &c., with a zeal born of the "wish to believe" which theologians tell us is the basis of faith. This, I venture to think, gives some value to my experience; for it enables me to say with some confidence that where failure has occurred it has at any rate not been due to half-heartedness in the application of the treatment. To prevent misconception it is necessary that it should be distinctly understood that what follows is not intended to be a historical sketch of the evolution of the modern treatment of lupus. A full account of all the changes that the whirligig of time has brought in methods of dealing with lupus would form an interesting chapter in the history of modern medicine but this

is not the place for such a narrative. I only propose to describe here my own personal experience of the various methods that have been in vogue during the past 25 years without mentioning the names of those to whom their introduction is due, still less discussing questions of priority. When I first began to treat lupus vulgaris great importance was—at least in England—attached to constitutional measures. Erasmus Wilson, whom I knew well, relied mainly on the internal administration of arsenic and other drugs supplemented by the local use of caustics. Tilbury Fox, whilst teaching that "the real treatment is destruction by caustics," deemed constitutional measures almost as important. No other method is mentioned in his book[1] which for us in England 25 years ago represented the most advanced dermatology. Soon afterwards the younger school, went to the opposite extreme. In a paper read by me at the annual meeting of the British Medical Association in 1883[2] I find it stated that constitutional remedies after many years of trial had failed to do more than palliate and had never succeeded in removing the disease when once established. Again, in an article which I contributed to Heath's "Dictionary of Surgery"[3] constitutional treatment is relegated to the background; indeed, it is referred to in somewhat contemptuous terms. It is said that "without active treatment the chance of cure is remote, if not impossible." The "active treatment" recommended is the total destruction of nodules by mechanical methods or chemical caustics. Treatment by the latter alone is described as "somewhat obsolete." In a small text-book on diseases of the skin published some years later[4] internal treatment is again pronounced to be useless as a means of curing the disease although it may sometimes be of service indirectly by counteracting any constitutional condition favouring its development. The only hope of cure lies in suitable local treatment.

Within the last decade entirely new methods of treatment have been introduced. Finsen has shown how lupus tissue can be destroyed by the application of the chemical rays of light and the x rays have been employed for the same purpose. I may claim to have been one of the pioneers of phototherapy in England and I have used, in conjunction with my colleague, Dr. S. Ernest Dore, both Finsen's light method and the Roentgen rays in a considerable number of cases of lupus vulgaris and have recorded the results fully and faithfully.[5] These results, though by no means so brilliant as those reported by Finsen and his associates, are, on the whole, satisfactory. Before entering on a critical discussion of the value of these methods, however, some general considerations on the treatment of lupus vulgaris may not be out of place. The multitude of remedies used is a proof that none of them is to be relied upon *semper et ubique*. Most methods have advantages but most, too, have disadvantages, and the secret of success lies in the judicious adaptation of the treatment to the character of the disease and the condition of the patient.

TYPES OF THE DISEASE.

Every case of lupus vulgaris presents peculiarities of localisation, course, extent, and reaction to treatment which make it in a clinical sense a variation of the general species. It would be tedious and unprofitable to enumerate all the varieties that I have met with. For practical purposes they may be grouped under a few principal types. These divisions do not necessarily correspond to difference in the pathological process; indeed, they are to some extent based on the stage of evolution in which the case first comes under the observation of the practitioner. In one class of cases the disease is superficial and spreads very slowly. In others the local infectivity is more active, a large area of skin is invaded, and the disease penetrates to the deeper layers. Fresh nodules spring up as the result of local infection, either in the immediate neighbourhood of the primary patch or within what may be called its sphere of influence. In others, again, it presents the characters of a general infection, the pathogenic organisms being distributed by the blood stream and multiple foci being developed in different parts of the cutaneous surface and on mucous membranes. Again, cases fall into two distinct categories, according as the general health is or is not affected; in other words, according as lupus vulgaris is a localised tuberculosis of the skin or is associated with other forms of tuberculosis, or with toxæmic conditions, or with constitutional debility caused by the disease itself. For each of these types of cases a different scheme of treatment is required.

[1] Skin Diseases: London, 1873.
[2] Brit. Med. Jour., 1883, vol. ii., p. 322.
[3] London, 1886.
[4] Diseases of the Skin, London, 1894.
[5] Brit. Med. Jour., Feb. 9th, 1901; ibid., May 31st, 1902; and June 6th, 1903.

THE CHOICE OF TREATMENT.

In choosing a method of treating lupus vulgaris a number of things have to be taken into account. There is first the seat of the disease. If an exposed part such as the face or neck is affected no method that gives rise to unsightly scars is admissible; the same may be said in respect of the arm if the patient is a young woman. The interior of the nose is often the starting point of lupus and it is therefore of the utmost importance to examine the part carefully and if possible to cure the disease. Unfortunately, the application of treatment in that situation is always difficult and, for the most part, unsatisfactory. But some good may be done by the use of the x rays, chemical caustics, and the cautery. Radium may also be of service. The extent of the disease is an important point to be considered. Where a large area of skin on the trunk or limbs is involved caustics, scarification, and the light treatment are not generally suitable. These methods require a long time for the production of the desired effect and owing to the pain directly or indirectly caused by them there is always a risk of the patient's health giving way under the prolonged strain. In such circumstances the best treatment is complete removal of the disease and a margin of sound skin around it with the knife. Care must, however, be taken that the deformity produced by the operation does not interfere with the movement of a limb or the function of a part.

The type of the disease and the stage of its evolution must also be taken into account. A small superficial patch may be successfully dealt with by the application of salicylic acid in plaster (Unna) or pyrogallic acid in ointment (Pick) which causes destruction of the diseased tissue. Moderate-sized patches can generally be cured by phototherapy. The action of the light rays, however, often requires to be reinforced by the use of the local remedies just mentioned.

The health of the patient is an element in the problem that must not be forgotten. In anæmic persons lupus spreads slowly and can generally be dealt with by gentle methods, such as applications of salicylic acid, pyrogallic acid, or the light treatment. When the disease assumes a generally infective form local treatment may be inadequate to stay the progress of the disease. In these circumstances, especially when the hygienic environment of the patient is unsatisfactory, constitutional treatment, sea air, supplemented if need be by thyroid extract and tonics, may be of great service. I have already said that in my youth I was a scoffer at constitutional treatment. Further experience has, however, led me to modify this opinion to some extent. In cases in which relapse had constantly occurred after the persevering use of local methods, I have seen this tendency cease under the influence of measures directed to the improvement of the general health.

In the choice of a method of treatment the question of pain must not be forgotten. 25 years ago much suffering was inflicted on patients by the excessive use of arsenical pastes and acid nitrate of mercury. These caustics were applied at short intervals and the treatment was often continued over many months. It required much courage to endure such prolonged torture and the general health often suffered in consequence. I think it right to insist on the fact that the sum of suffering caused by the light treatment, which is wrongly described as painless, is not inconsiderable, though it is far less than that caused by the penetrating caustics. Moreover, apart from the actual pain caused by the after-effects of the light rays, the tediousness of the treatment and the interference with the ordinary occupations of life which it entails, together with its cost, necessarily restrict its usefulness.

COMPARISON OF METHODS.

I have tried all methods of treating lupus vulgaris that have had the sanction of professional authority or that seemed to me to rest on a scientific basis. My experience, like that I suppose of every other dermatologist, is that while small superficial patches are curable by almost any of the recognised methods, when the disease is at all extensive it often resists all kinds of treatment. The enthusiasm aroused by the light treatment is partly to be explained by the fact that all other methods had been found to be more or less unsatisfactory.

Caustics.—As a rule I now use chemical caustics only after the application of the light rays or cautery. In cases in which these agents are inapplicable, however, I employ salicylic or pyrogallic acid, or both together. Minute nodules may be bored with a solid stick of nitrate of silver. Acid nitrate of mercury is very effective, but if freely used produces an unnecessary amount of scarring and pain. Lactic acid is sometimes useful as an application to ulcerated surfaces.

Cautery.—The galvano-cautery is still the best method at our disposal in cases in which the Finsen light or the x rays cannot be applied, especially when the areas to be treated are small. It can be applied with precision; it is painful only at the time of application, not afterwards; and it obviates the risk of local inoculation. For this practical point we are indebted to Besnier. The galvano-cautery should be used at a white heat and care should be taken not to do much at a sitting so as to avoid severe reaction.

Scarification.—This method, as already said, I have practically abandoned, as it has been superseded by the light treatment and galvano-cautery. In the past I have had good results in the treatment of patches on the face or other parts where it was important that a disfiguring scar should not be left. It may still be employed for the same purpose when for any reason the light treatment or cautery cannot be used.

Scraping.—Volkmann's method of scraping with a sharp spoon has often given excellent results in my hands. In some cases a single operation has effected a permanent cure. I have lately seen a woman whom I treated in this manner 20 years ago and no trace of recurrence was discoverable. The advantage of this method is that it is very rapid in its effect. The spoon should, of course, be sterilised before it is used. The procedure should always be followed by the application of some caustic, such as pyrogallic acid or chloride of zinc, or by filling up the holes left where the diseased tissue had been scraped out with fuming nitric acid which after being allowed to saturate the tissues for a few minutes is neutralised by the application of a solution of bicarbonate of soda. It may be interesting to state that the last mentioned of these methods, which has yielded very good results, was communicated to me by Lord Lister. The disadvantages of scraping are that it may leave very ugly scars; that it requires constant repetition with the administration of an anæsthetic; and that owing to this it causes much mental distress to the patient. To this must be added the fact that the most thorough scraping frequently repeated often fails to eradicate the disease. I now employ the method chiefly as a preliminary to the light treatment in extensive cases.

Excision.—In parts where a scar is of no consequence excision is specially applicable when the patient has no time or money to spare for the use of less vigorous but more tedious procedures. Not only the visibly diseased part but a margin of apparently healthy skin round it must be removed. The operation is applicable only in the case of patches situated on the trunk and limbs. However thoroughly the disease may be removed the probability of recurrence must always be borne in mind. In regard to permanence of cure, however, this radical method if carried out with sufficient thoroughness gives better results than any other. If the disease extends over a very large area the operation is a formidable one and even implantation of skin by Thiersch's method may fail to make up the enormous loss of cutaneous surface.

Light treatment.—My experience of Finsen's light method covers a period of four years and a half. During that time I have, in conjunction with Dr. Dore, treated a considerable number of cases. Our conclusion is that phototherapy, while no more infallible than any other methods, gives on the whole more satisfactory results than any other. From a cosmetic point of view it is much superior to scarification, while in regard to permanence of result it is not inferior to the most thorough-going caustic and surgical treatment. The light treatment requires to be applied by attendants who should be not only specially trained nurses, but endowed with special gifts of character and temper which, in my experience, are comparatively rare. The unrelaxing attention to every minutest detail that must be kept up for an hour or so in the treatment of one little portion of a patch entails a considerable strain on the nervous system. The success of the treatment depends on the care and intelligence with which it is applied. A perfunctory application of the light rays does more harm than good, for it stimulates instead of destroying the disease. Nearly all the cases treated by light rays have improved. In most of them, however, we have combined this with other methods, either preliminary or supplemental. Scraping, as already said, is a useful preliminary in some cases, while in nearly all cases the work of the light rays has to be supplemented by caustics. The most useful auxiliary treatment is the x rays, and in all cases except those in which the disease has been of small extent and quite superficial the two methods have been used in combination. Of 65 cases treated in this way up to June, 1903, 11 may fairly be claimed as cures, no relapse having occurred for periods varying from six months to two years. In all these cases the area of skin affected by the disease was small. In no case in which it was widespread was a complete cure effected, though in many the extent of the disease was greatly reduced. Most of the other cases showed a degree of improvement proportionate to the length of time they were under treatment. These figures, however, give no adequate impression of the beneficial effects of the treatment which may almost always be trusted to mitigate the disease in cases that have proved refractory to every other method of treatment and even when no visible improvement is achieved to check its progress.

The x rays.—The Finsen rays are of little use for the treatment of ulcerated surfaces and when there is great œdematous thickening they do not penetrate sufficiently deep to destroy the lupous tissue. The x rays are most useful in supplementing these deficiencies. My experience has been that ulcers heal rapidly under the influence of the x rays. This effect is more marked when one has to deal with deep ulcers than with slight superficial sores. The reason seems to be that in the former there is relatively little lupous tissue left, whereas when the ulceration is superficial, healing may take place over a mass of deep-seated lupus and breaking down is therefore more likely to take place. When the disease is extensive the ground may with advantage be prepared for the light by the preliminary use of the x rays. A large area can thus be treated at a time but care should be taken not to set up severe dermatitis. It is doubtful, however, whether permanent results can be obtained without some degree of inflammation. When mucous membranes are the seat of disease the x rays are more effectual than light. It is difficult to apply the light rays with the required accuracy to mucous membranes and some situations as the interior of the nostrils are inaccessible to them. The x rays are further of great value as a palliative treatment. Patients who cannot afford much time for treatment may derive considerable relief from a short course of the x rays. In some cases this has been sufficient to check the spread of the disease. It must, however, be admitted that although the x rays rapidly dry up discharge, heal ulceration, and disperse œdema they are of less use in eradicating the disease than is Finsen's method. For purposes of treatment by the methods under consideration lupus may conveniently be divided into five classes:—

1. *Cases of small extent in which no scarring procedure has been employed*—that is to say, in which the effect of the light is not hindered by the presence of scar tissue. In such cases Finsen's method is the best because it leaves little or no scar and is just as likely as severer methods to secure freedom from recurrence. The x rays also give excellent results but the time required is relatively longer owing to the difficulty of eliminating residual nodules and the applications may lead to the production of a telangiectic scar.

2. *Cases of small extent with a dense fibrous cicatrix resulting from previous treatment.*—In such cases treatment by the x rays or by Finsen's method applied in the usual manner is very tedious. Repeated applications to the same area without allowing healing to take place between each application are more efficacious although more painful.

3. *Cases of large extent (greater part of one or both cheeks or, say, from a quarter to one-third of the whole skin of the face affected) in which lupus is relatively superficial or the nodules are more or less discrete.*—In cases of this kind it is better to begin with the x rays and to finish with the light rays. More rapid results are obtained by the concurrent use of Roentgen and Finsen rays. The whole area should be exposed to the x rays and the edge treated by light.

4. *Cases of large extent in which there is a dense mass of lupous infiltration and fibrous tissue.*—Here neither the light nor the x rays make much impression. Probably vigorous

preliminary surgical measures such as excision or scraping, followed as soon after as possible by the x rays and again by the Finsen light if necessary, would considerably reduce the duration of treatment and give better results than those obtained from the x rays or the Finsen light alone.

5. *In lupus of mucous membranes* great initial improvement follows the use of the x rays, but relapses are frequent. In the upper parts of the nasal fossæ radium might be of use. I have had very little or no experience of this agent. Galvano-cautery is of service in such cases.

To sum up, the combination of Finsen's methods with the x rays, reinforced when necessary by the use of pyrogallic, salicylic, or carbolic acid or other caustic applications, has in my experience given good results in cases of lupus in which the disease is not very extensive and does not spread too rapidly to be overtaken by treatment. Vigilant supervision is necessary to detect any appearance and to destroy fresh nodules in the earliest stage of their development.

Tuberculin.—Like everyone else, when tuberculin was introduced to the world I gave it an eager trial. Notwithstanding the great immediate improvement which it produced the effect was not lasting; hence the agent which had at first been hailed as a specific was after a time discarded. Further experience, however, led one to the conclusion that it has a distinct, though limited, field of usefulness in the treatment of lupus vulgaris. Although it does not of itself cure the disease it modifies the process so as to make it more amenable to local treatment. Cases in which recurrence followed the use of the old tuberculin were permanently cured by the subsequent employment of surgical methods and caustics.* A course of tuberculin injections may therefore advantageously precede the treatment of lupus by local methods.

Constitutional treatment.—I have never seen any benefit follow the internal administration of arsenic, iodoform, or iodide of potassium, each of which has found distinguished advocates. On the other hand, I am sure that certain cases of the general infective type are much benefited by the internal administration of thyroid extract. Urea has been given in a series of 15 cases over a period of six months without any result whatever. But although no drug in my experience has any specific effect on lupus vulgaris, there are, as already said, cases in which properly directed constitutional treatment does much good. In persons with a tendency to tuberculous toxæmia, as when the process begins in a suppurating gland, constitutional treatment is indicated. Lupus of the general infective form which resists all other methods sometimes markedly improves under the influence of open-air treatment in the country. By this I mean the modern treatment of lung tuberculosis. In such cases the remedial effect is doubtless due to the improvement of the appetite and health generally. In certain cases a diet of lightly cooked or raw pounded meat combined with copious drinking of hot water has yielded excellent results. I certainly do not wish to be understood as holding that such methods are applicable to the treatment of all cases of lupus vulgaris. As already explained there are cases in which local treatment fails or even does harm and in which the progress of the disease appears to be stayed by constitutional treatment. This is a clinical fact which has forced itself on my attention as my experience has ripened and which affords encouragement in dealing with cases which are the mere despair of surgery.

CONCLUSIONS.

I have now treated more than 1000 cases of lupus vulgaris by various methods. I have not attempted to give exact statistics because in the large majority of cases the treatment has been so mixed that it would be impossible to say how much of the result was due to one and how much to another agent. The general conclusions to which my experience has led me may be summed up in the following propositions:—

1. It must be confessed that after every kind of treatment, whether used alone or in combination with others, recurrence is still very common.

2. As a general statement it may be laid down that small superficial quiescent patches are curable.

3. When the disease is of moderate extent and situated on the face Finsen's method, either alone or combined with the application of the x rays and supplemented by the use of caustics, is the most efficient method in regard to cosmetic effect and probably also in regard to permanency of result. The treatment, however, requires so much time that it is practically incompatible with the pursuit of any avocation needing close personal attention and directly or indirectly it entails considerable expense.

4. If a rapid effect is desired reliance must still be placed on gentle cautery if the disease is on the face and excision if it is on the limbs or the trunk, supplemented in the former case by pyrogallol, salicylic acid, nitrate of silver, or other caustics.

5. Very extensive and severe cases in which the health is affected must be dealt with by the general measures (open-air treatment, feeding, exercise, &c.) used at the present day in the treatment of pulmonary tuberculosis.

POINTS FOR CONSIDERATION.

A few points still remain which may probably be considered by this Congress. I will put these as briefly as possible.

1. Do we, with the superior equipment now at our disposal, cure more cases than we did 25 years ago? My own answer to this question is that this depends on the type of the disease. We certainly cure more curable cases and we cure them with less pain to the patient and, thanks mainly to Finsen, with much less disfigurement. Our differential diagnosis is more accurate and this helps us in adapting the various methods of treatment to the individual case. But incurable cases are still incurable and I fear it must be admitted that little more can be done for them than was effected by the older methods. We still meet with intractable cases that, so to speak, resent any interference. But fortunately these cases are rarer than they used to be 25 years ago.

2. A question meets us here to which different replies will be given by different persons according to their mental temperament. In the case of lupus vulgaris, what is to be looked upon as a cure? Most of us would doubtless reply: Removal or destruction of the disease, without recurrence. There is not, however, a definite time limit as in the case of cancer; would it not be well if some standard of permanency were adopted? As an aid to the solution of the question of cure I would suggest that the later history of cases in which the disease appears to have been checked should, whenever the patients can be traced, be recorded from time to time.

* Brit. Med. Jour., vol. i., 1893, p. 1154.

THE PHYSIOLOGICAL ACTION OF ETHYL ALCOHOL CONSIDERED AS A FOOD: A RESEARCH.

BY W. H. GODDARD, M.D., B.A. CANTAB.

MUCH discussion has arisen over the important and still unsettled question concerning the action of ordinary (ethyl) alcohol when introduced into the alimentary canal of a living animal as to whether—like the compound from which it is derived (i.e., grape sugar)—it is carried to the tissues and there oxidised, supporting life, giving off heat and energy the while—whether, in short, it acts as a food or, on the contrary, it has no such action in this respect, but is simply excreted from the animal system in an unchanged condition, and so can in no way lay claim to that title.

Liebig classed alcohol (ethyl) among the carbohydrate foods and the correctness of his classification remained undoubted until the year 1860, when Lallemand, Perrin, and Duroy (of Paris) announced, as the outcome of a series of experiments, that alcohol was eliminated from the system in an entirely unchanged form and could therefore in no way be considered a food. As may be supposed, this conclusion was strongly combated and among others by Binz and Baudot who, carefully experimenting, arrived at an almost opposite result—i.e., that a small portion only of the alcohol was excreted by the lung and kidney. Later Anstey, Thudicum, Dupré, and Schulinus, separately working at the same subject, confirmed the results of Binz and Baudot. Now, the experiments of Lallemand, Perrin, and Duroy are open to certain objections, since they administered alcohol in large doses, and we know that even grape sugar (which stands in the first rank among foods) when given in excess will give rise to sugar in the urine. Therefore, reasoning by analogy, we may expect that alcohol also when given in large doses will appear in the urine, for while the organism may be able to deal with

a limited portion at a time it will resent an excess and eliminate it. These observers used for the detection of the alcohol a sensitive reagent, i.e., a solution of potassium bichromate in sulphuric acid, by which the alcohol and other substances were converted into acetic acid. They therefore trusted to what is at best a colour test and not altogether reliable in estimating quantities. Moreover, they were unable to state the amount of alcohol which they recovered. Hence, their conclusion was in no way warranted by the result of their work. Binz and his followers, on the other hand, experimented with only small quantities of alcohol, and using the same testing reagents, supplemented possibly by others, were able to state exactly the amount of alcohol excreted by the lung and kidney, i.e., from 2 to 4 per cent., also to note the absence, or in some cases the presence, of certain different carbon compounds into which the alcohol might have been transformed, and to conclude that the difference between the amount of alcohol administered and the quantity recovered is retained by, and oxidised in, the system and therefore, with the small exception stated, is, without doubt, a food. This conclusion is supported by the researches of Hammond (who, while taking an insufficient diet and, in consequence, daily losing weight, found that the addition of alcohol to his food not only prevented loss but even caused him to gain in weight) and also by cases collected by Anstey and many others, of persons who have lived for a considerable period upon alcohol alone.

Among the physiologists and physicians of to-day there is still a difference of opinion as to the food-supplying power of alcohol, some agreeing with Binz and Baudot that, given in small quantities, it will act as a food; others with Lallemand, Perrin, and Duroy that, independently of quantity, it never acts but as a drug and in contradistinction to food. Now, if alcohol serves as a food for the animal body it can do so only by the process of oxidation. Mixing with the digestive juices, and in some unknown way modified by them, it passes into the blood, by which it is carried to the tissues, where it is finally oxidised (if the process be complete) into carbon dioxide and water. Whilst it is in itself thus oxidised, however, it interferes with the metabolism or oxidation of other substances, for on the administration of alcohol to animals it has been found that less oxygen is absorbed, the body temperature falls, and the albuminous tissues, whilst they do not waste, degenerate into fat, the amount of urea, uric acid, carbon dioxide, and salts being diminished. From all of which we may, perhaps, fairly infer that interference with the oxygenating function of the red corpuscles is one cause, at least, of the impaired metabolism and that the readiness of the alcohol to seize upon the oxygen in the tissues, and thus to rob the fixed elements of their proper share, arrests decomposition at the stage of fat formation and so, as a whole, prevents tissue waste.

Laboratory experiments (apart from the animal body) on alcohol, tell us that it can be oxidised in successive stages into acetic aldehyde, acetic acid, and finally into carbon dioxide and water. This suggests that these may be the exact gradations which actually do take place in the animal body. Indeed, the results of experiments which are to follow prove it to be so, excepting that, since citrates and tartrates when administered to animals give rise to carbonates in the urine, we may suppose that the closely allied acetates will also produce carbonates, and therefore we shall find that in the animal body alcohol is oxidised into the following substances: acetic aldehyde, alkaline acetates, alkaline carbonates, carbon dioxide, and water. It is, however, possible to suppose that, in addition to these compounds mentioned, other carbon compounds, volatile in their nature, might be met with, derived from the alcohol administered, i.e., the higher alcohols, certain ethers, ethereal salts, and possibly other carbon compounds also of a non-volatile order. Should either or both of these latter exist, however, they will be shown to be present in such small amounts as to be undetectable by the chemical means we have employed.

From the diametrically opposite views expressed by the French experimenters and their followers on the one hand, and Binz and his adherents on the other, it would appear that the whole subject requires further investigation. Also, that since the amount of alcohol administered in the experiments of both sets of observers seems to play an important part in the different conclusions arrived at, experiments ought to be undertaken in which alcohol should be administered in progressively increasing quantities with a view to find the exact point at which it begins to be eliminated as such from the animal body and to discover where possible the precise amount of the substances into which it is transformed in the body, i.e., what the exact rôle is which alcohol plays there. The following experiments were therefore performed, but before stating their exact results we must discuss the methods by which they were obtained.

A dog weighing about 12 kilogrammes is purged in order to clear the alimentary canal, and subsequently starved for 24 hours, when a small quantity (16 grammes) of alcohol is administered to it. The animal is then placed in a respiration chamber—the capacity of which is accurately known—and the expired air is collected during the whole time it exhibits properties other than those of ordinary expired air. The urine is also collected and examined during the time the animal is incarcerated. It is next killed and its body (a separate examination being made of its blood and its liver) is examined for all the carbon compounds, with the exception of the carbonates previously enumerated as derived from alcohol. Another dog of similar weight is then obtained and the amount of alcohol given is doubled, the experiment being repeated and the excreted products examined precisely as stated above. This animal, also, is killed and examined. Lastly, double the quantity of alcohol to that in the last instance is given, and the same methods are pursued. These processes are repeated several times in order to obtain averages of results. Under this class we take advantage of the fact that, as larger quantities of alcohol and its derivatives will be met with, we can therefore the more easily prove their presence—i.e., their qualitative determination. The expired air from the dog will now contain oxygen, nitrogen, carbon dioxide, water vapour, and, it may be, alcohol and acetic aldehyde, besides, possibly, other volatile carbon compounds (but not alkaline acetates or carbonates, since they are not volatile). The expired air is now passed through lime, which abstracts its water vapour and carbon dioxide, a previous check experiment having indicated that alcohol and aldehyde vapour are unaltered by dry lime. Now, the quantitative determination of mixed carbon compounds is always a difficult, if not an impossible, matter, more especially when they are so closely allied in their chemical composition as in the present instance of alcohol and acetic aldehyde. In the first place, therefore, in order to effect their separation we have recourse to the combustion furnace, whereby we accurately determine the weights of oxygen, hydrogen, and carbon present. Moreover, the carbon of the mixture so obtained will represent the total carbon resulting from the alcohol administered which has been given off by the lung.

We now proceed to separate directly the aldehyde from the mixture by three different methods: 1. The whole of the expired air of a dog, after having been passed through lime, is put through a refrigerator (which operates by means of liquid air, its temperature ranging between $-25°$ and $-30°$ C.) by which the alcohol and aldehyde are condensed. To them is added dry calcium chloride. The whole is then weighed, the aldehyde is drawn off with an air pump, and the resulting difference in weight will be that of the aldehyde. 2. Another collection of expired air is again frozen, and to the resulting liquid a trace of dry hydrochloric acid is added, by which the aldehyde of the mixture is converted into its polymer, paraldehyde—$3(C_2H_4O)$. In this process we take advantage of the fact that at the temperature stated the vapour pressure of paraldehyde is almost *nil*, and in consequence it is directly frozen out and can be separated from the alcohol. 3. Another portion of air, similarly treated by lime and subjected to a low temperature, is fractionally distilled under reduced pressure, and the resulting alcohol and aldehyde are weighed. This process can be used only when we are dealing with comparatively large quantities. Experiments with known weights of alcohol and aldehyde vapour show that these bodies are recoverable by the three methods just mentioned within an error of 1 per cent.

Since, then, by the last three processes we obtain the amount of aldehyde, the average quantity deducted from the results obtained by the combustion of the mixed vapours, &c., enables us to estimate the amount of alcohol present. The residue from the process by which paraldehyde resulted is passed into strong sulphuric acid largely diluted with water and is then distilled with lime. The vapour density of the resulting gas is taken, also its boiling point; any aromatic smell is noted, and conclusions are drawn therefrom as to its nature, whether any further volatile carbon compounds be present or not.

We now come to the urine of the animal, which is

collected and subjected to decrease of pressure; the resulting gases are passed through lime, and the amounts of alcohol, aldehyde, and possibly other volatile carbon compounds are estimated in the manner before mentioned in the examination of the expired air. The liquid now remaining contains, besides its normal substances, acetates and carbonates and perhaps also other non-volatile carbon compounds resulting from the alcohol administered. The acetates are removed by the following method: (1) Distillation with phosphoric acid so long as the distillate comes over acid. (2) Neutralisation of distillate with sodium carbonate, evaporation to dryness, and extraction of the residue *several times* with warm absolute alcohol. (The sodium acetate is taken up by the alcohol.) (3) Evaporation of the alcoholic extract to dryness, and solution of the residue in a little water. Distillation with sulphuric acid. The distillate from (3) now contains any acetic acid there may be, as also other acids (if any) of the acetic series, and can be tested and weighed as ordinarily. The carbonates are estimated by the amount of carbon dioxide into which they are in part converted. From another collection of urine from an alcoholised dog we pump off any volatile matter, then acidify with sulphuric acid, and collect the liberated carbon dioxide. The carbon dioxide will now be mixed with air and water, which may be eliminated by being passed through calcium chloride and potassium hydrate tubes respectively. The potassium hydrate tubes should be supplemented by another calcium chloride tube to catch any water the potassium hydrate may lose.

In order to ascertain whether any other non-volatile carbon compounds be present or not we proceed as follows:—1. To insure an average result the normal urine of a dog is collected during a period of 24 hours *on three separate occasions*. The liquid portion is pumped off and the remaining solids are combusted, by which process we obtain the total amount of carbon contained in the carbon-holding compounds of the urine, which are urea, uric acid, hippuric acid, kreatinin, also the pigment, and other substances appertaining to it. 2. During a similar period of 24 hours the urine of an alcoholised dog is secured and treated in precisely the same way as was that of the normal dog. From the total carbon thus obtained the carbon due to both acetates and carbonates contained in it is deducted; hence, any difference between this resulting quantity and that obtained from the urine of the normal dog must obviously be due to some new carbon compound.

The next thing to be considered is the examination of the blood, and, in order to obtain a sufficiently large quantity, that of two dogs is taken. This is secured just immediately before their death and surrounded by a cooling mixture so that it may retain its fluidity. The gases of the blood are obtained by a modified Sprengel air pump, the carbon dioxide is removed by passing them through lime, and the remainder is treated as in the case of those of the expired air, with the exception that in consequence of the small quantities of gas or gases (alcohol or acetic aldehyde) obtained no differentiation is attempted. The rest of the blood is now examined for acetates, as in the method previously given when the urine was examined. For obvious reasons no attempt is made to ascertain the amount of the carbonates. The animal is killed, the body finely minced, mixed with powdered glass, and shaken in an air-tight vessel. Its gases are drawn off and treated, as previously stated, for the detection of the alcohol, acetic aldehyde, &c. The remaining solid portion of the body is, after the addition of pure water, raised to a temperature of 100° C. and filtered, the filtrate also being examined for acetates by the methods already given as used in the examination of the urine. The carbonates existing in the body of the animal are not sought. Considering the great metabolic changes which ordinarily take place in the liver it is deemed advisable to search this organ separately. The liver of an alcoholised dog is therefore taken, minced, and placed under diminished pressure of the air pump, and its resulting gases are examined for alcohol, acetic aldehyde, &c., as in the case of the expired air. Next the livers of two alcoholised dogs are secured immediately at the point of death, plunged into boiling water, and retained there some little time in order to fix the glycogen present. They are then minced, mixed with powdered glass, macerated with water, put under hydraulic pressure, and filtered, the filtrate being examined for acetates by the method previously given. The carbonates are not sought for. We will now proceed to the actual experiments.

CLASS A.

Experiment 1.—The dog weighed 12·4 kilogrammes. After having been purged and fasted for 24 hours, its temperature being normal, 16 grammes of absolute ethyl alcohol, mixed with a similar quantity of pure water, were administered to it. The animal was now placed in a respiration chamber and the expired air collected during a period of five and a quarter hours. It was then examined and proved to be normal. The whole of the collected gases, which amounted to 637·5 litres, were passed through lime and subsequently sent on to the combustion furnace, when, combustion being completed, the amount of carbon, hydrogen, and oxygen together was found to equal 2·14 per cent. of the alcohol administered. The temperature of the animal on examination was found to have fallen 0·5° F.

Experiment 2.—After three days this experiment was repeated and the resulting carbon, hydrogen, and oxygen then showed 2·16 per cent.

Experiment 3.—The dog was similarly treated again (after two or three days) and the same quantity of alcohol was given in the same way, when the amount of carbon, hydrogen, and oxygen recovered equalled 2·15 per cent. Hence the average amount of carbon, hydrogen, and oxygen was equal to 2·15 per cent. of that of the alcohol administered.

Experiment 4.—Another quantity of expired air, after having been passed through lime, was sent on to the refrigerator; the resulting liquid (0·39 gramme) was volatilised by heat; one cubic centimetre was collected and its vapour density was taken, which was found to be 22·9 and its boiling-point 78·2° C., hence it was alcohol.

Experiment 5.—Another quantity of expired air having been passed through lime was put through the refrigerator: the temperature was − 28° C. To the resulting liquid, which amounted to 0·89 gramme in weight, were added 20 grammes of dry calcium chloride. The air pump was now applied to the mixture and on being drawn off the gas showed no appreciable amount of aldehyde to be present.

Experiment 6.—This experiment was again repeated with the same result, therefore no further experiments by the other methods were performed for the detection of the aldehyde.

Experiment 7.—The urine passed, together with that drawn off by catheter, had the gases pumped off. After repetition of the experiment three times the average percentage quantity of alcohol (proved to be alcohol by the methods employed in Experiment 4) was found to be 2·89 per cent., while the acetic aldehyde was found to be inappreciable.

Experiment 8.—No new carbon compound was found in the body after death.

Experiment 9.—No new carbon compound was found in the blood after death.

Experiment 10.—No new carbon compound was found in the liver after death.

CLASS B.

Experiment 1.—A dog, weighing 12·1 kilogrammes, and of normal temperature, had 32 grammes of alcohol, mixed with a similar quantity of water, given to it. The expired gases after nine hours and ten minutes amounted to 1141·5 litres. They were now passed through lime, sent on to the combustion furnace, and the average total amount of carbon, hydrogen, and oxygen after three experiments was found to be 4·44 per cent. The temperature of the dog was found to have fallen 0·9° F.

Experiment 2.—Another lot of air from the dog having been passed through lime was sent on to the refrigerator. The resulting liquid was collected and by the calcium chloride process the aldehyde was found to be 2·2 per cent.

Experiment 3.—Another quantity of expired air was passed through lime and sent on to the refrigerator. The resulting liquid, on being treated by the paraldehyde process, was found to be 2·22 per cent. Hence, by difference between it and the whole of the expired air—i.e., 4·44 per cent.—we had 2·23 per cent. due to the alcohol. The presence of these bodies (alcohol and acetic aldehyde) was proved in this instance, as in the similar case under Class C, as also the absence of any other volatile carbon compound in the expired air.

Experiment 4.—The urine of the animal was collected; its gases were drawn off by the air pump, passed through lime, and sent on to the combustion furnace. The average percentage quantity of carbon, hydrogen, and oxygen after three experiments was found to be 2·21 per cent.

Experiment 5.—Another quantity of urine was collected;

its gases were drawn off, passed through lime, and sent on to the refrigerator. On the calcium chloride process being applied the amount of aldehyde was found to be inappreciable. Hence 2·21 per cent. (in the above) was due to the alcohol. The presence of the alcohol was proved as in the method under Class C.

Experiment 6.—Another collection of urine, after having its gases separated from it, was treated by the method given for the detection of the acetates and carbonates, with a negative result.

Experiment 7.—A trace of alcohol only was found in the animal's body after death.

Experiment 8.—No new carbon compound was found in the blood after death.

Experiment 9.—No new carbon compound was found in the liver after death, but an amount of acetic acid (or one of the acetic acid series, see Class C, Experiment 14) equal to 2·1 grammes.

CLASS C.

Experiment 1.—To a dog of normal temperature, weighing 12·2 kilogrammes, 64 grammes of absolute alcohol mixed with 80 grammes of pure water were administered. The expired air, which after the expiration of 14 hours and ten minutes amounted to 1785·3 litres, was collected and passed through lime, then conveyed to the combustion furnace, at the end of which process the amount of carbon, hydrogen, and oxygen was found to be 6·9 per cent. The temperature of the dog was found to have fallen 1·8° F.

Experiment 2.—The experiment was repeated and the amount of carbon, hydrogen, and oxygen was found to be 7·1 per cent.

Experiment 3.—The experiment was again repeated and the amount of carbon, hydrogen, and oxygen was found to be 7·66 per cent. The average amount, therefore, of carbon, hydrogen, and oxygen was equal to 7·22 per cent. of the alcohol given.

Experiment 4.—Another quantity of expired air, after having been passed through lime, had its resulting gas sent on to the refrigerator. No. 1 (the calcium chloride process) showed that the amount of aldehyde was equal in weight to 3·6 per cent.; in No. 2 process (the paraldehyde) it was found to be 3·3 per cent.; and similarly, by the fractional distillation process, 3·9 per cent. The average, therefore, was 3·9 per cent. and by difference between it and the amount of the mixed gases (alcohol and aldehyde) we have 3·32 per cent. as due to the alcohol.

Experiment 5.—The gas resulting in the calcium chloride process (i.e., after the absorption of the alcohol by the calcium chloride) was found to have the vapour density of 21·8 and a boiling point of 21° C. Another quantity of the same gas on being bubbled through a solution of silver nitrate reduced the silver, while another quantity gave a crystalline compound with acid sodium sulphite. Hence it was undoubtedly aldehyde.

Experiment 6.—The substance resulting from the paraldehyde method was found to have the vapour density of 4·57 and a boiling point of 123° C. On being heated to 100° it was found to give all the tests previously tried for aldehyde, therefore the substance was without doubt paraldehyde.

Experiment 7.—In the fractional distillation process one resulting fluid gave the vapour density of 22·9 and a boiling point of 79° C., also a substance found to be iodoform on the addition of iodine and caustic potash; the fluid, therefore, must be alcohol. The aldehyde obtained in the paraldehyde process was passed into strong sulphuric acid and water, and then distilled with lime; no aromatic smell was given off, while the vapour density and boiling point on being tested were found to be those of alcohol. Hence little, if any, other volatile carbon compound could be present.

Experiment 8.—The urine, which amounted to 192 grammes, was collected as previously and the air pump was applied, the gases being collected and passed through lime, and then sent on to the combustion furnace. On combustion being completed it was found that the amounts of carbon, hydrogen, and oxygen were 43·7 per cent.

Experiment 9.—The experiment was repeated. The amounts of carbon, hydrogen, and oxygen were found to be 43·8 per cent.; and on a second experiment they were 43·9 per cent.; hence the average amounts of carbon, hydrogen, and oxygen equalled 43·8 per cent.

Experiment 10.—Another collection of the gases having been drawn from the urine and passed through lime, the amount of aldehyde was found to be (by the calcium chloride process) 2·9 per cent.; by the paraldehyde process, 2·8 per cent.; and by the fractional distillation process, 2·4 per cent. The average amount of aldehyde, therefore, was 2·7 per cent., and so by difference the alcohol was equal to 41·1 per cent. of the alcohol administered.

Experiment 11.—The gas resulting in the calcium chloride process (i.e., after the absorption of the alcohol by the calcium chloride) was found to give all the tests previously enumerated for aldehyde, and therefore was aldehyde. The same results were obtained with the paraldehyde and the alcohol.

Experiment 12.—The fluid obtained in the paraldehyde process was passed into strong sulphuric acid and water and distilled with lime. No aromatic smell was given off; the vapour density and boiling point, on being tested, were found to be those of alcohol; hence little, if any, other volatile carbon compound could be present.

Experiment 13.—Another collection of urine (drawn from two alcoholised dogs in order to obtain a greater quantity) after having its gases separated from it, was treated in the way previously described for the detection of the acetates. The resulting liquid was found to weigh 4·8 grammes, or 2·4 grammes (equalling 0·96 gramme of carbon) for one lot of urine.

Experiment 14.—The liquid from the last experiment after having been re-distilled was found to boil at 117·5° C. It exhibited an acid smell. Fractional distillation failed to resolve this substance into any other substance or substances; hence it was acetic acid only.

Experiment 15.—The urine of a dog (192 grammes) in its normal condition—i.e., not treated by alcohol—after having its gases drawn off was tested for carbonates in the way previously given; the amount of carbon dioxide given off amounted to a few cubic centimetres only, therefore we might assume the carbonates contained in the urine of a normal dog to be scarcely anything.

Experiment 16.—Two collections of urine drawn off from the alcoholised dog after having the gases pumped off were tested for the carbonates. The amount of carbon dioxide given off was found to be 4·382 litres, or 2·191 litres for one dog (equalling 4·304 grammes).

Experiment 17.—The normal urine of a dog was now taken, the fluid portion pumped off, and the total solids combusted. The amount of carbon was then found to be 2·606 grammes.

Experiment 18.—This last experiment was repeated and the total carbon found to be 2·600 grammes.

Experiment 19.—This experiment was again repeated when the amount of carbon was found to be 2·612 grammes. The average amount of carbon was therefore 2·606 grammes.

Experiment 20.—The urine of an alcoholised dog was next taken, and on combustion the total amount of carbon was found to be 7·890 grammes.

Experiment 21.—This experiment was repeated and the amount of carbon found to be 7·900 grammes.

Experiment 22.—The same experiment was again repeated, when the amount of carbon was found to be 7·809 grammes. The average total amount of carbon, therefore, was 7·863 grammes; but we have seen that the carbon due to the acetates and carbonates in the urine of an alcoholised dog was 0·960 gramme and 4·304 grammes respectively, equalling 5·264 grammes. This amount, deducted from the total amount of carbon in the urine, gave 2·602 grammes, which was almost exactly equal to the amount of carbon found in the urine of a normal dog, hence no new carbon compound was present.

Experiment 23.—The animal was now killed and its body examined. The alimentary canal was found to contain a small amount of mucus and fæces in which no trace of any new carbon compound could be detected. This note has reference to Classes A and B also. The mixed gases were drawn off by an air pump, and the carbon, hydrogen, and oxygen found to be 2·4 per cent., while on applying the calcium chloride method for the detection of the aldehyde no appreciable quantity of it was discovered to be present. Therefore 2·4 represents the percentage of alcohol given, proved to be alcohol as under Experiment 4, Class C.

Experiment 24.—The blood of two dogs was drawn off and the air pump applied when it was found that the amounts of carbon, hydrogen, and oxygen were only 2·2 per cent. for two dogs, or 1·1 per cent. for one dog, of the alcohol administered. The gas was proved to be alcohol by all the tests given, and there was some indication that aldehyde was present.

Experiment 25.—The livers of the animals were minced

and the air pump applied to them. To the gases obtained the ordinary tests for the detection of the presence of aldehyde and alcohol were applied, with negative results. Moreover, on combusting some portion of the gas after passing through lime, carbon was shown to be absent; hence neither alcohol nor aldehyde was present.

Experiment 26.—Two livers were again taken, freed from glycogen (in order not to complicate the extraction of the acetic acid) and on application of the test previously described a compound was obtained which weighed 7·10 grammes, or 3·55 grammes for one liver. On being examined it answered to all the tests previously tried for the detection of acetic acid, and was therefore acetic acid.

In conclusion, then, we observe from these experiments that when alcohol to the amount of $\frac{1}{7\frac{1}{2}}$th part of the body weight of the animal was administered to it a little more than 5 per cent. of that amount was excreted; and since no aldehyde or other alcohol derivatives are found in the expired air, in the urine, in the blood, or in any part of the body of the animal after death, we may conclude that the remainder—nearly 95 per cent.—is made use of as a food. When, as under Class B, we administer double the quantity of alcohol of that in the previous experiment we find that a little more than 6 per cent. is excreted; and here, for the first time, acetic aldehyde makes its appearance in the expired air. From this we may perhaps conclude it to be the first indication of failure on the part of the animal system to deal with so large a quantity of alcohol, and more especially so since at the same time we find no aldehyde in the urine or elsewhere in the animal body. When, as in the last set of experiments (Class C), we administer a very large dose we observe that rather more than 49 per cent. of alcohol or its equivalent is excreted. We thus notice an absolute failure on the part of the animal body to utilise about half of the quantity of the alcohol administered. We find that the compounds into which the alcohol has been formed are aldehyde, alkaline acetates, alkaline carbonates, and we may fairly assume carbon dioxide and water. In addition to these, however, it is quite possible that other carbon compounds excreted from the animal may exist, but after most careful investigation we fail to find them by the chemical means we employ in any appreciable quantity and therefore we may assume them to be practically absent.

To sum up shortly, *in small doses only* alcohol is most undoubtedly a food, but as when large doses are taken about 50 per cent. of it is excreted from the system it cannot then be considered a food in the proper sense of that term, and if still larger quantities be taken it is more than probable that this contention would apply with even greater force.

TABLE I.—*Summary of Experimental Results, showing the Average Percentage Quantities.*

Number of experiments.	Amount of alcohol given.	Alcohol in the expired air.	Aldehyde in the expired air.	Alcohol in the urine.	Aldehyde in the urine.	Alcohol in the body.	Aldehyde in the body.	Alcohol and aldehyde in the blood.
(*A*) 6	16 grammes.	2·15	0	2·89	0	0	0	0
(*B*) 6	32 grammes.	2·23	2·21	2·21	0	A trace.	0	0
(*C*) 6	64 grammes.	3·32	3·9	41·1	2·7	2·4	0	1·1

TABLE II.—*Showing the Non-volatile Carbon Compounds found in the Urine.*

Amount of alcohol given.	Carbonates.	Acetates.
(*A*) 16 grammes.	0	0
(*B*) 32 grammes.	0	0
(*C*) 64 grammes.	4·304 grammes.	2·4 grammes.

THE VALUE OF HETOL IN PULMONARY TUBERCULOSIS.

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THE value of hetol (the synthetic cinnamate of sodium) given intravenously is still undecided, the short periods of treatment followed rendering a number of observations useless. Two of the following cases were injected for about six months and the others for six or seven weeks. Tubercle bacilli were found in the sputum of all the cases. The blood for counting was always taken four hours after a meal and at the same hour on alternate days in each case. The technique and method employed were the usual and the same in all cases: thorough disinfection of the skin, using a four-hours perchloride compress and sterilisation of all instruments. Any sufficiently large veins of the arms were used. The method of graduated increase of dose on alternate days as advised by Professor Landerer was followed, though, finding no ill-effects, the increase was often more rapid than he advises. The maximum dose varied from 20 to 50 milligrammes, never getting any ill-effects. The leucocytosis was not in proportion to the amount of injection. The maximum leucocytosis was generally obtained with about 20 milligrammes. In all the cases a definite leucocytosis was produced by each injection; often the normal count was doubled. For the use of the notes I am indebted to the medical staff of the Sussex County Hospital.

CASE 1.—A man, aged 29 years, was admitted to hospital on June 11th, 1903. He had hæmoptysis two years ago, in March, 1902, and again in April, 1903. He had three severe hæmoptyses in the five days before admission. There were very definite constitutional symptoms. He had lost seven pounds in weight in the last three months. There were marked signs of active tubercle (consolidation with numerous crepitations) at both apices, the right side worse; also the apices of both the lower lobes were affected. There was slight hæmoptysis four days after admission. Injections commenced seven days later. His weight was 9 stones 10 pounds. Reaction to hetol gave a marked leucocyte count four hours after injection of two milligrammes of 13,400 per cubic millimetre (his normal was 8000). The sputum decreased and disappeared. After six weeks of treatment (16 injections) only an occasional sibilus was to be heard at the right apex behind. There were no adventitious sounds over the rest of the lungs and no cough and the patient was much better. His weight was 9 stones 10 pounds. Severe indigestion complicated his case and interfered with his gain of weight.

CASE 2.—A woman, aged 35 years, was admitted to hospital on August 14th, 1903. She came from a phthisical family. The duration of her illness had been six months. There were diffuse active infection of the right lung and some catarrh of the left bronchial tubes. There were frequent cough and copious muco-purulent sputum. On August 20th hetol was commenced. The patient's weight was 5 stones 6½ pounds. The cough and sputum gradually subsided. On Oct. 9th the right base and axilla were quite dry and there were only crepitations at the right apex and at the left apex behind. From now the patient was treated while an outpatient in exceedingly poor surroundings, coming to the hospital on alternate days for injections till Jan. 4th, 1904. Improvement was maintained in spite of her circumstances (she had six children, the eldest being 12 years of age). After five months of injections crepitation was only to be heard at the left apex, the rest of the lungs being quite dry. Her weight was 5 stones 9½ pounds. There were no sputum and very little cough and her general condition had much improved. This patient also took cod-liver oil latterly.

CASE 3.—A man, aged 35 years, was admitted to hospital on Feb. 22nd, 1903. He had had hæmoptysis five years ago; the sputum and cough had been worse lately. He was admitted after hæmoptysis (about four ounces). His temture was 100° F. There were marked active signs at the right apex and some consolidation at the left apex. Injections were begun on March 9th. His weight was 10 stones 2 pounds. The leucocyte count was 7500 per cubic millimetre; four hours after injection of one milligramme it was 11,500; after eight milligrammes it was 12,750; and after 11 milligrammes 16,000. On April 16th, after 20 injections, his

weight was 10 stones 12½ pounds. The lung was almost dry; there were only a few creaks at the end of deep inspiration at the right apex and breathing was slightly bronchial. There was no sputum and the cough was slight.

CASE 4.—A man, aged 39 years, was admitted to hospital on Dec. 5th, 1902. He came from a phthisical family, as also did his wife. The duration of his illness had been one year. He had lost 21 pounds in weight in ten weeks. His weight was 10 stones 7 pounds. There was copious sputum. There was diffuse affection of the right lung with cavity at the right apex, also crepitations, though less numerous, all over the left lung. The leucocyte count was 8000; there was good reaction after hetol, the leucocytes being from 14,000 to 15,000 generally. There was gradual improvement in weight and general condition. On Jan. 25th, after 24 injections, his weight was 11 stones. The bacilli were still very numerous. The right lung was consolidated throughout but was much drier and the left lung was quite dry. There was much less sputum and the general condition was improved. This patient also had cod-liver oil with small doses of creasote.

CASE 5.—A woman, aged 27 years, was admitted to hospital for lupus on March 19th, 1903. She came from a phthisical family. She suffered from a tuberculous hip when two years of age. She had tuberculous abscesses in the neck and foot when 11 years old. From the cicatrix of incision for abscess in the neck the lupus appeared and spread over the face and from the discharging wound of the right foot tuberculous disease of the skin of the leg commenced and spread to above the knee. On admission there were typical lupus erythematosus of the face and advanced tuberculous disease of the skin of the right leg and foot with a foul discharging ulceration of the foot exposing several diseased phalanges. Since a few weeks before admission she had had a slight dry cough. The face, leg, and foot were treated surgically; they were scraped under anæsthesia and dressed with salicylic acid and chloride of zinc, &c. On April 15th the patient still had a slight dry cough and her temperature was still markedly hectic. Examination of the chest showed signs of slight consolidation at the right apex but no adventitious sounds. On May 6th the temperature shot up to 103·6° F. and reached this level each night with morning remissions. The cough was about the same; the lupus was healing well. The chest showed numerous crepitations with consolidation all over the right apex and also at the apex of the right lower lobe. Tubercle bacilli were present in the sputum. On May 12th the night temperature was 103·4°. Hetol was commenced. The leucocyte count was 8000 approximately. The patient's weight was 5 stones 1½ pounds. On the 14th the evening temperature was lower than it had been since the 6th. The appetite had been better since the injections; eight hours after the injection the leucocytes were 15,000. After each injection for some hours the lupus on the face was congested and hot. On the 18th crepitations were heard at the left apex also. Up to July 2nd 10 milligrammes had been the maximum dose, now it was gradually increased. On the 22nd the apices were the same. The right lower lobe was drier but there were crepitations in the right middle lobe. On August 8th the pulse and respirations were gradually improving. The general condition was better. Marked retraction was appearing over both apices, more over the right, and the right apex was much drier. The left apex had still numerous crepitations; the right middle and lower lobes were drier. During August and September the dose was increased gradually up to 50 milligrammes. The temperature was better under these large doses and no ill-effects were noticed. There was no sputum. From Sept. 15th the dose was gradually lessened again. On the 29th the patient's weight was 5 stones 5 pounds and the right lung was quite dry. There were a few crepitations at the apex of the left lung and in the left axilla. During October 30 milligrammes were given steadily, the patient walking about the hospital with the aid of a stick; she ate and slept well. There was no sputum and she coughed very little. Her weight was about the same. On Nov. 17th there were only a few crackles at the left apex remaining with an occasional crackle on deep breathing under the inferior angle of the left scapula. The rest of the lung was quite dry. Her weight was 5 stones 5 pounds. At this stage she begged to be allowed to go home, where, under filthy conditions, she died in less than two months. The right, the first and more affected, lung had quite dried up and I believe a continuation of the treatment would have dried up the remaining left apical affection.

CASE 6.—A woman, aged 24 years, was admitted to hospital on Dec. 2nd, 1902. She came from a phthisical family. The duration of her illness had been four years. She had had hæmoptysis three and a half years ago and frequently since and during the week before admission had hæmoptysis about half an ounce each day. She expectorated one and a half ounces of sputum in 24 hours. On the 10th injections were commenced. Her weight was 7 stones 6 pounds (she had lost three-quarters of a pound since admission). There was consolidation at both apices—the left apex was worse—also slightly at the apex of the left lower lobe. On Jan. 18th, after 17 injections, there was no sputum and the patient felt well. There was a gain of half a pound in weight. The sweating ceased, the right apex was normal, and the left lower lobe was normal, but the left apex was still consolidated and there was a slight cough. This patient also had cod-liver oil.

CASE 7.—A man, aged 42 years, was admitted to hospital on Oct. 30th, 1903. The duration of his illness had been two months. On the day of admission he had hæmoptysis (two ounces). He also had a cirrhotic liver. His appetite was bad and he had morning vomiting which complicated his treatment. There was consolidation at the right apex and consolidation with crepitations at the left apex and at the apex of the left lower lobe; also vomica at the left apex. On Dec. 11th, after 23 injections, he had gained five pounds in weight and there were only a few clicks at the left apex; the rest of the lung was dry. This patient complained of cough only on the nights following the injection and not on the alternate nights.

TABLE SHOWING THE EFFECTS OF THE HETOL TREATMENT IN SEVEN CASES.

No.	Sex.	Age.	Duration.	State of disease.	Complications.	Days of treatment.	No. of injections.	Maximum dose.	Difference in weight.	Effect on lungs.
1	M.	29	2 years.	Active in both apices and both lower lobes.	Severe gastritis.	44	17	30 mg.	*Nil.*	Much improved.
2	F.	35	6 months.	Diffuse in one lung.	—	136	61	35 mg.	Gained 3 pounds.	,,
3	M.	35	5 years.	Active in one apex.	—	42	20	20 mg.	Gained 10½ pounds.	,,
4	M.	39	1 year.	Diffuse in both lungs; cavity at one apex.	—	50	24	20 mg.	Gained 7 pounds.	Considerably improved.
5	F.	27	—	Diffuse.	Tuberculosis of skin and bones.	185	80	50 mg	Gained 1½ pounds.	Much improved.
6	F.	24	4 years.	Both apices and lower lobe in early stage.	—	49	17	20 mg.	Gained ½ pound.	Improved.
7	M.	42	2 months.	Both apices and one lower lobe.	Cirrhosis of liver with gastritis.	42	23	25 mg.	Gained 5 pounds.	Much improved.

My results lead me to the opinion that hetol, though not a specific, is a useful adjunct to any other treatment of tubercle (*vide* table).

West Bromwich.

TAUNTON AND SOMERSET HOSPITAL.—Collections were made in the streets of Taunton on Oct. 8th on behalf of the Taunton and Somerset Hospital, when the sum of £55 was raised for that institution.

ON THE ACTION EXERTED UPON THE TUBERCLE BACILLUS BY HUMAN BLOOD FLUIDS,

AND ON THE ELABORATION OF PROTECTIVE ELEMENTS IN THE HUMAN ORGANISM IN RESPONSE TO INOCULATIONS OF A TUBERCLE VACCINE.[1]

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WE propose to consider in this communication (1) the action exerted upon the tubercle bacillus by normal human blood fluids and the tuberculotropic[2] substances which come here into consideration; (2) the action exerted upon the tubercle bacillus by the blood fluids of those who are the subject of tuberculous infection; (3) the distribution of tuberculotropic substances in the infected organism; (4) the question as to whether these protective substances are present in the blood of the infant at birth; and (5) some points in connexion with the elaboration in the human organism of tuberculotropic substances in response to inoculations of a tubercle vaccine.

1.—ON THE TUBERCULOTROPIC ELEMENTS OF HUMAN BLOOD AND ON THE CONTENT OF THE NORMAL BLOOD IN THESE ELEMENTS.

Agglutinins.—The technical difficulties created by the circumstance that the tubercle bacillus grows in artificial culture in agglomerated masses stood for a long time in the way of the demonstration of the presence of agglutinins in the serum. These difficulties were for the first time overcome by Arloing who obtained by the operation of a process of selection a strain of tubercle which gives a homogeneous growth when the culture is frequently shaken up. For the homogeneous cultures of Arloing, Koch substituted a homogeneous suspension of bacillary fragments obtained by the trituration of ordinary tubercle cultures. Koch made his suspension with physiological salt solution. The test fluid thus constituted exhibits—and this point did not escape the observation of Koch—a proneness to spontaneous agglutination. This defect, and it is a defect which may invalidate the results of any test examination, can, as was pointed out by one of us,[3] be eliminated by employing in lieu of the 0·85 per cent. salt solution prescribed by Koch, a 0·1 per cent. salt solution.[4] We have in the case of the investigations on agglutination which are embodied in this paper in every case employed this 0·1 per cent. salt solution both for the dilution of the serum and for the suspension of the tubercle powder.

In some of our more recent experiments we have substituted for the test fluid constituted as above a homogeneous suspension of tubercle bacilli obtained by heating an ordinary tubercle culture to 60° C. for an hour, filtering off the bacterial growth, breaking up this last in a mortar with a solution of 0·1 per cent. salt in 0·5 per cent. carbolic acid and finally centrifugalising to remove any bacterial masses which have not been resolved into their elements. In experiments conducted with either the one or the other of these test fluids agglutination effects are obtained with normal human serum. Conducting the experiments in throttled capillary tubes by the method described by one of us[5] and taking cognisance of the effect by naked-eye inspection, a complete sedimentation is generally obtained in the two- and four-fold dilution and incomplete sedimentation in the eight-fold dilution. With some normal bloods complete sedimentation is obtained up to the 16-fold dilution.

Bactericidal elements.—Our investigations into the question as to the presence of a bactericidal element in human serum are as yet incomplete.

Opsonins.—As already brought out by us in previous papers,[6] the phagocytic effect obtained when bacteria are introduced into the blood is dependent upon an action exerted by the blood fluids directly upon the micro-organisms. We have spoken of this action which prepares the micro-organisms for phagocytosis as an opsonic action (Latin: *opsōno*, I cook, I prepare pabulum for).

We have investigated this question also in connexion with the tubercle bacillus. In doing so a two-fold technical difficulty confronted us: first, a difficulty associated with the circumstance that the tubercle bacillus is available in ordinary cultures only in the form of agglomerated bacterial masses; and, secondly, a difficulty associated with the circumstance that unaltered tubercle bacilli when they have been obtained in homogeneous suspension are agglutinated by the action of both serum and physiological salt solution. The first difficulty can be surmounted by breaking up the bacterial masses in a mortar in a 0·1 per cent. salt solution—i.e., in a salt solution diluted up to the point at which it will no longer bring together by its agglutinating action tubercle bacilli which have been mechanically separated. The second difficulty can be surmounted by heating the tubercle culture to 100° C.

We subjoin here a series of experiments (conducted before the procedure last mentioned was thought out) with living tubercle bacilli suspended in a 0·1 per cent. salt solution. It will be seen that the difference between the phagocytic effect obtained with the unheated and the heated serum respectively is sufficiently pronounced to throw altogether into the background the source of disturbance which is associated with the presence of an agglutinating element in the serum.

PRELIMINARY EXPERIMENTS.

In this series of experiments a homogeneous suspension of living tubercle bacilli was made by rubbing up a small quantity of a tubercle growth (obtained from a glycerine potato culture) in an agate mortar in 1 in 1000 salt solution and then centrifugalising to get rid of the bacterial masses which had not been resolved into their elements.

Experiment 1.

A.

A. E. W.'s unheated serum	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 67 P.W.B.C.), 5·4.

B.

A. E. W.'s serum heated to 60° C. for 20 minutes	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 30 P.W.B.C.), 0·75.

Experiment 2.

A.

S. R. D.'s unheated serum	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 16 P.W.B.C.), 17·3.

B.

S. R. D.'s serum heated to 60° C. for 20 minutes	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 37 P.W.B.C.), 3·0.

Experiment 3.

A.

C. J.'s unheated serum	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 19 P.W.B.C.), 14.

B.

C. J.'s serum heated to 60° C. for 20 minutes	2 vols.
S. R. D.'s washed corpuscles	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 37 P.W.B.C.), 3·0.

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[1] A paper communicated to the Royal Society on July 26th, 1904.

[2] The term "tuberculotropic" is, in accordance with the scheme of terminology introduced by Ehrlich, employed by us to connote the property of *turning towards* and entering into chemical combination with the tubercle bacillus.

[3] Wright: THE LANCET, July 25th, 1903, p. 214.

[4] The principle which suggested the replacement of the stronger by the weaker salt solution finds application, as one of us (S. R. D.) has recently elicited, also in the case of plague cultures. The spontaneous agglutination which has up to the present been a source of difficulty in measuring the agglutination effect exerted by sera upon plague cultures can be completely avoided by employing a 0·1 per cent. solution of salt in lieu of the broth or physiological salt solution ordinarily employed.

[5] Wright: Loc. cit.

[6] Proceedings of the Royal Society, vols. lxxii. and lxxiii.

With cultures which have been exposed to a temperature of 100° C. precisely similar results are obtained, while an advantage is gained in the respect that the count is no longer rendered difficult by the massing together of the bacilli. All the experiments hereafter subjoined have been carried out with such a culture—i.e., a culture heated to 100° C., broken up in 1 in 1000 salt solution and centrifugalised until all unresolved clumps had been carried down.

Our next series of experiments was undertaken with a view to determine whether the increased phagocytic effect obtained with the unheated serum is due to an action exerted by the serum directly upon the tubercle bacilli.

Experiment 1.

A.

S. R. D.'s unheated serum	2 vols.
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 20 P.W.B.C.), 6·9.

B.

S. R. D.'s unheated serum	2 vols.
Suspension of heated tubercle bacilli	1 vol.

The above were digested together for 15 minutes at 37° C., were then heated to 60° C. for ten minutes, and finally three volumes of the mixture were added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 31 P.W.B.C.), 3·5.

C.

S. R. D.'s unheated serum	2 vols.
Suspension of heated tubercle bacilli	1 vol.

The above were immediately, after mixture, heated to 60° C. for ten minutes and were then added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 50 P.W.B.C.), 0·16.

Experiment 2.

A.

A. E. W.'s unheated serum	2 vols.
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 49 P.W.B.C.), 5·2.

B.

A. E. W.'s unheated serum	2 vols.
Suspension of heated tubercle bacilli	2 ,,

The above were digested together for 15 minutes at 37° C., were then heated to 60° C. for ten minutes, and finally three volumes of the mixture were added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 40 P.W.B.C.), 2·6.

C.

A. E. W.'s unheated serum	2 vols.
Suspension of heated tubercle bacilli	1 vol.

The above were immediately after mixture heated to 60° C. for ten minutes and were then added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 50 P.W.B.C.), 0·34.

Experiment 3.

A.

H. B. S.'s unheated serum	2 vols.
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 20 P.W.B.C.), 4·8.

B.

H. B. S.'s unheated serum	2 vols.
Suspension of heated tubercle bacilli	1 vol.

The above were digested together for 15 minutes at 37° C., were then heated to 60° C. for ten minutes, and finally three volumes of the mixture were added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 30 P.W.B.C.), 2·6.

C.

H. B. S.'s unheated serum	2 vols
Suspension of heated tubercle bacilli	1 vol.

The above were immediately after mixture heated together for ten minutes to 60° C. and were then added to

A. E. W.'s washed corpuscles	2 vols.

Phagocytic count (average of 20 P.W.B.C.), 0·4.

It will be manifest that these experiments testify to an opsonic action exerted by the serum directly upon the tubercle bacilli. The smaller phagocytic effect recorded in each experiment in B as compared with A is at present without explanation.

The experiment next subjoined indicates that it is the potency of the serum rather than the potency of the white corpuscles which determines the amount of phagocytosis. In this experiment the corpuscles of the tuberculous patient's blood and the corpuscles of the normal blood respectively were employed in A′ and A″ in combination with their native blood fluid. In B′ and B″ a reciprocal exchange of blood fluids was made.

A′.

Patient's washed corpuscles	2 vols.
Patient's serum	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 36 P.W.B.C.), 0·66

A″

A. E. W.'s washed corpuscles	2 vols.
A. E. W.'s serum	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 32 P.W.B.C.), 3·1

B′.

Patient's washed corpuscles	2 vols.
A. E. W.'s serum	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 31 P.W.B.C.), 2·1.

B″.

A. E. W.'s washed corpuscles	2 vols.
Patient's serum	2 ,,
Suspension of living tubercle bacilli	1 vol.

Phagocytic count (average of 30 P.W.B.C.), 1·3.

It will be seen that the phagocytic effect obtained with the patient's white corpuscles (in A′) was (in B′) increased more than three-fold in consequence of the replacement of their native serum by that of the control blood. The phagocytic effect obtained with the white corpuscles of the control blood (in A″) was (in B″) diminished in an almost corresponding degree (approximately two and a half times) by the replacement of their native serum by that of the patient. These results are, it may be pointed out, in conformity with those recorded in our previous paper[7] in connexion with the phagocytosis of the staphylococcus pyogenes.

2.—ACTION EXERTED UPON THE TUBERCLE BACILLUS BY THE BLOOD FLUIDS OF THOSE WHO ARE THE SUBJECT OF TUBERCULOUS INFECTION.

The blood fluids of the subjects of a particular bacterial infection may be expected to differ with respect to their content in bacteriotropic substances from the blood fluids of normal persons. An increased content in these elements may be expected in the case where there has been active response on the part of the machinery of immunisation to the stimulus of infection; diminished content (*a*) where that machinery is becoming exhausted; and (*b*) where infection is dependent upon a native, or, at any rate, antecedent deficiency in protective substances.

Agglutinating effect.—We have in no instance found the agglutinating power of the blood of tuberculous patients higher than that of certain normal bloods. Sometimes we have found it notably decreased. In three cases we have found it altogether absent. On the average we find that it does not differ sensibly from that of the normal blood. It would seem to follow—and this conclusion is in conformity with that arrived at by others—that no indication as to the presence or absence of tuberculous infection can be drawn from the measurement of the agglutinating power, unless perhaps in the case where that reaction is found to be quite absent.

Opsonic effect.—The measurement of the opsonic power of the blood fluid discloses very definite differences. We have not in any of the subjoined patients recorded at the outset an opsonic power equal to that of our own bloods. On the contrary, there has been in each such case a definite defect of opsonic power. The results of our observations on this point are embodied in the table below.

TABLE I.—*Showing the Opsonic Power of the Blood Fluids in a Series of Tuberculous Patients.*

The procedure adopted was to mix together in each case the patient's serum with a suspension of heated tubercle

[7] Proceedings of the Royal Society, vol. lxxiii., pp. 129 and 130.

bacilli and with washed corpuscles derived from a normal person. In each case the opsonic power of the normal serum employed as a control (derived in practically every case from A. E. W. or S. R. D.) was taken as unity.

Serial number of the observation.	Form of the tuberculous infection.	Opsonic index.
Case 1	Tuberculous peritonitis.	0·67
,, 2	Laryngeal phthisis.	0·6
,, 3	Psoas abscess.	0·4
,, 4*	Tuberculous sycosis.	0·4
,, 5	Nasal and pharyngeal lupus.	0·56
,, 6	Tuberculous cystitis.	0·8
,, 7	,, ,,	0·6
,, 8	Generalised lupus.	0·5
,, 9	Lupus of hand.	0·9
,, 10	Tuberculous prostatitis.	0·8
,, 11	Tuberculous glands.	0·85
,, 12	Tuberculous abscess of the thigh.	0·64
,, 13†	Lichen scrofulosorum.	0·56
,, 14	Pulmonary phthisis.	0·75
,, 15	,, ,,	0·69
,, 16‡	Tuberculous infection of the ovary and peritonitis.	0·65
,, 17	Tuberculous abscesses of the arm and chest wall.	0·56

* It is interesting to note in connexion with this case that the definite diagnosis of tuberculous infection, which was based upon the histological structure of a piece of excised tissue, was anticipated in view of the inductions obtained from the phagocytic test recorded above. The alternative diagnosis of staphylococcus infection was excluded by the fact that the patient was found to possess a normal opsonic index with respect to the staphylococcus.

† The patient gave a typical local and general reaction when inoculated for diagnostic purposes with a test dose of Koch's old tuberculin.

‡ The diagnosis was based upon a histological examination of the extirpated ovary.

As indicated above, a diminished content in bacteriotropic substances such as we have here on record may be ascribed either to the exhaustion of the protective elements under the influence of the bacterial invasion or, alternatively, to an antecedent deficiency in these elements. The following considerations appear to us here to plead in favour of interpreting the low opsonic power of the tuberculous patients here in question as the occasion and not the consequence of infection.

(*a*) Very low opsonic indices have been obtained where constitutional symptoms were absent or insignificant. The cases denoted by the serial numbers 3, 4, 5, and 8 are instances in point.

(*b*) We have in practically every case found it possible to increase by an inoculation of a tubercle vaccine the opsonic power of a patient's blood fluids.

3.—DISTRIBUTION OF TUBERCULOTROPIC SUBSTANCES IN THE INFECTED ORGANISM.

We have made the subjoined observations on this question. It will be seen that they are in consonance with the observations* we have made in connexion with the distribution of the staphylococcic opsonins in the infected organism, and with the induction that the bacteriotropic pressure is always reduced in the actual foci of infection.

Observation 1.

The patient was a child, aged two years, affected with tuberculous necrosis of the sternum and with a tuberculous abscess in the thigh.

A.

Serum obtained from blood drawn from finger	1 vol.
Physiological salt solution	1 ,,
S. R. D.'s washed corpuscles	2 vols.
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 20 P.W.B.C.), 3·9

B.

Supernatant fluid of pus withdrawn from abscess	1 vol.
Physiological salt solution	1 ,,
S. R. D.'s washed corpuscles	2 vols.
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 20 P.W.B.C.), 1·1.

* On the Action exerted upon the Staphylococcus Pyogenes by Human Blood Fluids and on the Elaboration of Protective Elements in the Human Organism in response to Inoculations of a Staphylococcus Vaccine. Proceedings of the Royal Society, vol. lxxiv., pp. 151-53.

Observation 2.

The patient was a young man suffering from a psoas abscess due to tuberculous infection.

A.

Serum obtained from blood withdrawn from finger	1 vol.
Physiological salt solution	1 ,,
A. E. W.'s washed corpuscles	2 vols.
Suspension of heated tubercle bacilli	2 ,,

Phagocytic count (average of 40 P.W.B.C.), 0·6.

B.

Supernatant fluid of pus derived from sinus	1 vol.
Physiological salt solution	1 ,,
A. E. W.'s washed corpuscles	2 vols.
Suspension of heated tubercle bacilli	2 ,,

Phagocytic count (40 P.W.B.C. searched), 0.

With a view to ascertaining whether the tissue lymph might not normally be poorer in opsonic substances than the serum, the following experiment was made:—

A.

Serum of blood withdrawn from A. E. W.'s finger	2 vols.
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 50 P.W.B.C.), 0·92.

B.

Fluid from blister raised by friction upon A. E. W.'s finger	2 vols.
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 50 P.W.B.C.), 0·86.

Observation 3.

The patient was a young man operated upon for ascites dependent upon extensive tuberculous infection of the peritoneum.

A.

Serum obtained from blood withdrawn from finger	1 vol.
B. H. S.'s washed corpuscles	1 ,,
Suspension of heated tubercle bacilli	1 ,,

Phagocytic count (average of 21 P.W.B.C.), 25·4.

B.

Fluid withdrawn from peritoneum	1 vol.
B. H. S.'s washed corpuscles	1 ,,
Suspension of heated tubercle bacilli	1 ,,

Phagocytic count (average of 34 P.W.B.C.), 4·6.

It is interesting to bring into relation with the data of this last observation (*a*) the fact that the opsonic index of this patient's serum stood to the opsonic index of the control serum employed (A. E. W.'s) as 1·5 : 1; (*b*) the fact that the prognosis, so far as the restriction of the infection to the existing focus of disease, is comparatively favourable in cases of tuberculous peritonitis; and (*c*) the fact that a retrogression of the infection often follows in these cases upon the evacuation of the peritoneal fluid.

The first and second of these facts suggest that a reaction of immunisation may be set up by the absorption of vaccinating elements from the infected peritoneum. The third fact, and the same applies (as was shown in the paper just referred to, Proceedings of the Royal Society, vol. lxxiv., p. 152) also in connexion with the evacuation of abscesses, may, perhaps, find its explanation in the data given above. It would be reasonable to expect that the flow of new and active lymph, which would follow upon the evacuation of the stagnant and exhausted lymph, would operate in the direction of checking the growth of invading micro-organisms.

4.—QUESTION AS TO WHETHER THE PROTECTIVE SUBSTANCES WHICH COME INTO CONSIDERATION IN CONNEXION WITH TUBERCLE ARE PRESENT IN THE BLOOD OF THE INFANT AT BIRTH.

In view of the asserted superior susceptibility of infants to tuberculous infection it appeared to us to be of interest to measure the respective opsonic power of mother and infant. We employed for this purpose blood taken from the umbilical cord and blood taken from the mother's finger immediately after completion of labour. Our observations are subjoined.

Observation 1.

A.

Serum from mother No. 1	2 vols
A. E. W.'s washed corpuscles	2 ,,
Suspension of heated tubercle bacilli	1 vol.

Phagocytic count (average of 45 P.W.B.C.), 1·6.

B.

Serum of infant No. 1 ... ... 2 vols.
A. E. W.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 50 P.W.B.C.), 1·38.

Observation 2.

A.

Serum of mother No. 2 ... ... 2 vols.
A. E. W.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 50 P.W.B.C.), 0·4

B.

Serum of infant No. 2 ... ... 2 vols.
A. E. W.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 100 P.W.B.C.), 0·37.

Observation 3.

A.

Serum of mother No. 3 ... ... 2 vols.
J. F.'s washed corpuscles ... ... 2 ,,
S spension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 40 P.W.B.C.), 3·55.

B.

Serum of child No. 3 ... ... 2 vols.
J. F.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 40 P.W.B.C.), 1·85.

Observation 4.

A.

Serum of mother No. 4 ... ... 2 vols.
A. E. W.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 31 P.W.B.C.), 17·9.

B.

Serum of infant No. 4 ... ... 2 vols.
A. E. W.'s washed corpuscles ... ... 2 ,,
Suspension of heated tubercle bacilli ... ... 1 vol.
Phagocytic count (average of 30 P.W.B.C.), 10.

Observation 5.

A.

Serum of mother No. 4 agglutinates a suspension of fragments of tubercle bacilli completely in dilutions of 1 in 2, 4, 8, and 16; incompletely in a dilution of 1 in 32.

B.

Serum of infant No. 4 agglutinates the same suspension completely in dilutions of 1 in 2 and 1 in 4; incompletely in dilutions of 1 in 8 and 1 in 16.

5. ON SOME POINTS IN CONNEXION WITH THE ELABORATION BY THE HUMAN ORGANISM OF TUBERCULOTROPIC ELEMENTS IN RESPONSE TO INOCULATIONS OF A TUBERCLE VACCINE.

We propose to set down here in briefest outline the more important of the facts which have emerged in the course of a study of the blood changes elicited by inoculations of a tubercle vaccine undertaken for therapeutic purposes.

Nature of the tubercle vaccine employed.—A tubercle vaccine may be defined, with respect to its derivation and its effect upon the organism, as any derivative of the protoplasm of the tubercle bacillus, which is capable of inducing an elaboration of tuberculotropic substances in the organism. We may include under this definition :—

1. Such a vaccine as would be arrived at by (*a*) sterilising a tubercle culture at 60° C. ; (*b*) breaking up the culture in a mortar in 0·1 per cent. salt solution ; (*c*) centrifugalising to remove any residual bacterial masses ; (*d*) resterilising at 60° C. ; and (*e*) standardising by enumeration, or by centrifugalisation in graduated tubes in a sufficiently concentrated salt solution.

2. The preparation which is sold as a therapeutic agent under the name of Koch's new tuberculin or T.R. tuberculin. This preparation consists, as is well known, of a fine suspenison of triturated tubercle bacilli. The trituration to which the tubercle culture is subjected is employed with the two-fold object of sterilising the vaccine by a process of comminution and of obtaining the fine suspension which is desired. It is doubtful whether the first of these ends can be efficiently secured by any process of trituration. The homogeneous suspension which is desired can, as was shown above, be obtained by means other than the comminution of the bacilli by machinery.

3. The preparation which is now sold, chiefly for diagnostic uses, under the name of Koch's old tuberculin.[9] This preparation consists, as is well known, of the inspissated filtrate of a tubercle culture which has been grown for a period of weeks upon glycerinated broth and which has afterwards been sterilised at 100° C. Pending the working out of a vaccine upon the lines indicated in (1), the T.R. tuberculin has been the vaccinating material employed. In our earlier experiments this preparation was simply diluted with sterilised salt solution. In our later experiments we have—after satisfying ourselves that the vaccinal properties of Koch's preparation are unaffected by the adoption of such precautions—in every case heated the T.R. tuberculin to 60 C. for one hour and have made our dilutions with a sterilised salt solution which had received an addition of 0·25 per cent. lysol.

TABLE II.—*Showing the Agglutinating Power of the Blood in the case of a Series of Patients before Inoculation and after a Series of Inoculations of Tubercle Vaccine.*

Patient's initials.	Highest dilution of serum in which complete agglutination was obtained and date of observation (in brackets).	Highest dilution of serum in which complete agglutination was obtained after the inoculations particularised in the next column and date of observation (in brackets).	Doses of T.R. tuberculin and dates of inoculations (in brackets).
			Milligrammes.*
A. R.	3 (2.12.03)	32 (23.3.04)	0·0025 (2.12.03)
			0·01 (17.12.03)
			0·01 (4.1.04)
			0·01 (14.1.04)
			0·0075 (21.1.04)
			0·0075 (1.2.04)
			0·015 (15.2.04)
			0·02 (1.3.04)
			0·04 (11.3.04)
J. A.	0 (6.4.03)	64 (21.4.03)	0·002 (6.4.03)
			0·01 (8.4.03)
			0·02 (15.4.03)
N. T.	4 (6.1.04)	64 (23.3.04)	0·003 (20.1.04)
			0·005 (2.2.04)
			0·01 (23.2.04)
			0·015 (2.3.04)
			0·02 (12.3.04)
N. W.	8 (10.12.03)	32 (20.3.04)	0·01 (17.12.03)
			0·0075 (4.1.04)
			0·0075 (19.1.04)
			0·01 (28.1.04)
			0·01 (10.2.04)
			0·015 (19.2.04)
			0·02 (3.3.04)
			0·02 (14.3.04)
E. J.	4 (27.1.04)	32 (16.3.04)	0·003 (27.12.03)
			0·0066 (11.1.04)
			0·01 (23.1.04)
			0·015 (1.3.04)
E. S.	2 (17.4.03)	64 (30.4.03)	0·005 (21.4.03)
			0·01 (24.4.03)
M. O.	0 (15.12.03)	24 (17.2.04)	0·004 (23.12.03)
			0·008 (5.1.04)
			0·016 (21.1.04)

* The weights here in question refer in each case to the weight of tubercle powder stated to be contained in the quantum of T.R. tuberculin administered.

[9] The proposition that the old tuberculin may appropriately be denoted a vaccine derives its justification, first, from the consideration that the prolonged cultivation and the prolonged digestion of the culture which are involved in the process of manufacture must be associated with autolysis, and secondly, from the observations made in connexion with Case 13 of Table I. and the last patient in Table III. In the former case the opsonic index of the patient's blood stood at 0·56 immediately before the inoculation of 1 milligramme old tuberculin. It stood at 0·55 18 hours afterwards in the height of the febrile reaction and at 1·01 three days later. In the latter case the opsonic index of the blood stood at 0·67 immediately before the inoculation of 1 milligramme of the old tuberculin. It stood next day at 0·4 and eight days later at 0·76.

TABLE III.—SHOWING THE CHANGES INDUCED IN THE OPSONIC POWER OF THE BLOOD FLUIDS BY THE INOCULATION OF TUBERCLE VACCINE AND FURNISHING ILLUSTRATION OF THE FACT THAT THE CUMULATIVE INCREASE OF THE PROTECTIVE ELEMENTS WHICH IS DESIRED CAN BE ACHIEVED ONLY BY THE PROPER REGULATION AND INTERSPACING OF THE SUCCESSIVE DOSES OF VACCINE.

Initials.	Brief history of case.	Dates and particulars of inoculations undertaken since March, 1904.	Milligrammes.*	Opsonic index (opsonic power of the normal blood—A. E. W.'s—used as a control was taken as = 1).
E. J.	The patient, a man, aged 30 years, developed tuberculous glands on the left side of the neck and a tuberculous abscess on the point of the shoulder in the autumn of 1902. He was admitted to hospital and was operated upon for the first time in January, 1903. The wounds becoming invaded with tubercle and refusing to heal, while the area of infection gradually extended, six further (scraping, extirpating, and skin-grafting) operations were undertaken during the course of the year. In December, 1903, when the patient came up for treatment by inoculation, the whole area from the point of the shoulder to the ear had been converted into an ulcerated surface, there was a deep crater undermining the angle of the jaw and the ear, the left side of the face was distorted with swelling, and the axilla was occupied by a gland as large as a pigeon's egg. The patient was very anæmic and emaciated. Steady improvement has been made under the inoculation treatment. The swelling of the face has almost entirely dispersed, the cavity under the jaw has healed up from the bottom, the gland in the axilla can no longer be felt, the ulcerated wound surfaces have almost completely closed, and the patient has the constitutional aspect of a healthy man.	28.3.04 18.4.04 25.4.04 10.5.04 7.6.04 27.6.04 15.7.04 19.7.04	0·04 0·1 0·1 0·1 0·1 *Nil* 0·02 *Nil*	— 0·73 — — 1·6 1·45 — 1·15
	Note.—During the period 7.6.04—15.7.04 the inoculations of tubercle vaccine were suspended while the patient was being immunised against the staphylococcus pyogenes, which, by its presence on the wound, appeared to be preventing the process of healing.			
E. S.	The patient went into hospital in December, 1902, with the characteristic symptoms of an infection of the urinary tract. Tubercle bacilli were constantly present in altogether unusual numbers in the urine and a tuberculous ulcer of the bladder was detected. The patient had been losing flesh and suffered from night sweats and from constant pain and frequent micturition. Treatment by inoculation was begun on 21.4.03 and had been continued up to date, inoculations and examinations of the blood and urine being undertaken on an average once in ten days. Under the treatment the tubercle bacilli in the urine have gradually diminished and since the beginning of May they have been completely absent. The patient has increased 36 pounds in weight and is now to all intents and purposes well except for an infection of the urinary tract by the bacillus coli and pneumococcus, which is being dealt with by the inoculation of the appropriate vaccines.	25.3.04 8.4.04 18.4.04 27.4.04 9.5.04 1.6.04 15.6.04 6.7.04	0·5 0·5 0·5 *Nil* 0·5 0·5 *Nil* *Nil*	— 0·93 0·4 0·42 0·77 0·4 1·3 2·2
	Note.—The results of the blood examinations bring out that the inoculations were here conducted with excessive doses or perhaps at too short intervals. It will be seen that the opsonic power of the patient's blood declined in consequence of the inoculation undertaken on 8.4.04 from 0·93 on that date to 0·4 on 18.4.04. On the date last mentioned another 0·5 milligramme was inoculated—and it may be noted in this connexion that here as elsewhere it was often necessary to inoculate before the result of the blood examination was known. On 27.4.04 recovery was still incomplete, the patient being obviously poorly and the inoculation was postponed. When next examined, 12 days later, the opsonic power of the blood was found to have risen to 0·77. A further dose of 0·5 milligramme was then inoculated, with the result that the opsonic power was reduced again to 0·4 on 1.6.04. On this day the patient again received a dose of 0·5 milligramme; the effect of this became manifest 14 days after in the rise of the opsonic power to 1·3 and 36 days after in the rise of opsonic power to 2·2.			
N. W.	The patient, a woman, aged 31 years, developed a tuberculous infection of the glands of the neck at the age of 14 years. When the abscesses which formed in association with these were opened the overlying skin became invaded, the infection spread to other glands, and tuberculous disease developed in the little finger of the right hand. The two terminal joints of this finger were removed when the patient was 16 years old. When the patient was 19 years old she was treated with Koch's old tuberculin, receiving from three to four inoculations a day (150 inoculations in all). As a result of these inoculations the patches of lupus on the hand, neck, and face became inflamed, a piece of bone sloughed out of the arm, and the patient lost weight and became seriously ill. She remained in hospital in all 13 weeks. Four years later energetic local treatment was adopted and scraping operations were undertaken upon the glands in the neck. In 1900 the Finsen light treatment was adopted and was persevered in for 18 months. This effected an improvement in the condition of the face and neck, but the disease continued to extend in the deeper structures, and in particular in the bones of the left arm. Finally it became necessary to amputate this limb. The disease now broke out in the stump, on the point of the shoulder and in the chest wall, while it persisted all over both sides of the face and neck. After Roentgen rays had been tried unavailingly recourse was had to inoculations of tubercle vaccine, the treatment being begun on Dec. 10th, 1903. After six months' treatment the discharge from the stump and chest wall has practically ceased, the patch on the point of the shoulder has healed up, the face appears to be in a better condition, and the patient's general health, which was previously very unsatisfactory, has improved in a remarkable manner. Her body-weight has steadily gone up and has now reached 141½ pounds, as much as 5 pounds having on one occasion being gained in the interval between two successive inoculations.	18.4.04 3.5.04 16.5.04 1.6.04 10.6.04 19.6.04 6.7.04 22.7.04	0·04 0·05 0·05 0·05 *Nil* 0·04 0·04 —	0·16 0·6 — 0·78 — — 1·85 1·7
A. R.	The patient, when referred for treatment by anti-tuberculous inoculations in December, 1903, was found to be an emaciated, anæmic, physically and mentally undeveloped person, 19 years of age, affected by lupus of the nose, throat, angle of jaw, and feet and hands. The last were a mass of ulceration, the bones of the hand being involved in many places. After six months' treatment the patches of lupus of the nose and throat have almost dried up and the condition of the hands and feet is much amended.	22.3.04 7.4.04 18.4.04 28.4.04 5.5.04 6.5.04 16.5.04 7.6.04 4.7.04 19.7.04 22.7.04	0·02 0·05 0·1 *Nil* 0·05 *Nil* 0·1 0·1 0·04 — 0·04	— 1·1 0·25 — 0·61 0·85 — 1·2 0·95 1·3 2·9
	Note.—The obviously excessive dose of 0·1 milligramme was administered on 18.4.04 before it had been elicited by blood examination that the patient had not yet responded to the dose of 0·05 milligramme administered on 7.4.04. As a result—it may be assumed—of this cumulation of doses considerable constitutional disturbance was experienced. In view of this and of the development of a phlyctenula on the eye (a phenomenon which had once before been noticed in connexion with the development of a negative phase) the inoculation fixed for the 28.4.04 was postponed and on the next occasion a smaller dose was administered.			

* The weights here in question refer in each case to the weight of tubercle powder stated to be contained in the quantum of T.R. tuberculin administered.

TABLE III. (*Continued*).—SHOWING THE CHANGES INDUCED IN THE OPSONIC POWER OF THE BLOOD FLUIDS BY THE INOCULATION OF TUBERCLE VACCINE AND FURNISHING ILLUSTRATION OF THE FACT THAT THE CUMULATIVE INCREASE OF THE PROTECTIVE ELEMENTS WHICH IS DESIRED CAN BE ACHIEVED ONLY BY THE PROPER REGULATION AND INTERSPACING OF THE SUCCESSIVE DOSES OF VACCINE.

Initials.	Brief history of case.	Dates and particulars of inoculations undertaken since March, 1904.	Milligrammes.	Opsonic index (opsonic power of the normal blood—A. E. W.'s—used as a control was taken as = 1).
A. A.	The patient, a young man, had been in bed for 12 months with a psoas abscess which discharged continuously and showed no signs of improvement. Treatment by inoculation was begun on April 8th. The patient is reported to have made rapid progress towards recovery immediately after the adoption of the treatment.	8.4.04	0·002	0·4
		20.4.04	0·002	—
		3.5.04	—	0·5
		10.5.04	0·004	—
		31.5.04	0·01	—
		2.6.04	—	0·8
		16.6.04	—	1·1
M. O.	The patient, a young married woman, developed a double psoas abscess which was opened up before and behind in January, 1903. The discharge from the wound continued till December without any sign of improvement, the temperature reaching 101° F. practically every night. The treatment by inoculations of tubercle vaccine was begun in the middle of December, 1903, and has been continued since that date. The temperature became normal ten days after the first inoculation, the wounds are practically healed and the patient is able to go out for drives. Her body-weight has increased by 16 pounds.	The record of the inoculations which were carried out by the surgeon in charge of the case is not to hand.		
		10.6.04	0·1	—
		19.6.04	—	1·95
S. T.	The patient, a man, aged 35 years, is the subject of phthisis associated with tuberculous disease of the larynx.	2.6.04	0·02	0·6
		8.6.04	—	1·15
		9.6.04	0·004	—
		21.6.04	—	0·93
		22.6.04	0·008	—
		12.7.04	0·008	0·84
		25.7.04	—	1·36
S. N.	The patient, a woman, aged 34 years, developed at the age of 14 years a tuberculous abscess in the left shoulder, at the age of 16 years a similar affection of the right leg behind the knee, and at 17 years of age lupus of the hand and foot. The little finger of the right hand was amputated in 1887, the third finger of the same hand in 1903, and three toes in April, 1904. In each case the tuberculous infection has recurred in the site of the wound.	13.6.04	0·004	0·9
		21.6.04	0·01	—
		27.6.04	0·005	0·7
		5.7.04	—	0·65
		14.7.04	—	1·05
		15.7.04	0·008	—
		21.7.04	—	0·73
S. B.	The patient, a man, aged 22 years, had been the subject of lupus for the last 15 years. He had been treated by all the ordinary methods, including the application of Roentgen rays. Practically the whole of his face and neck were affected. He had also large patches on the scalp, trunk, and elbow of the right arm.	7.7.04	0·002	0·5
		11.7.04	—	0·44
		15.7.04	0·004	—
		18.7.04	—	1·3
P. C.	The patient, a woman, aged 55 years, had for a long period of years been the subject of lupus of the nose. The affection has now spread to her pharanx and larynx.	5.7.04	0·002	0·56
		12.7.04	0·004	0·48
		19.7.04	—	1·0
J. S.	The patient, a man, aged 35 years, had suffered for two years from an inflammatory tumefaction of the subcutaneous tissues in the region of the angle of the jaw and anterior portion of the throat. The patient has been treated by scraping and the application of antiseptics.	4.7.04	1·0*	0·67
		5.7.04	—	0·4
		13.7.04	0·004†	0·76
		21.7.04	—	1·06

* Old tuberculin. † New tuberculin.

PRINCIPLE UPON WHICH THE PATIENTS WERE SELECTED AND GENERAL PROCEDURE FOLLOWED IN CONNEXION WITH INOCULATIONS.

We have in our selection of cases been guided by the desire to deal at first only with the most aggravated and seemingly intractable cases of localised tuberculous infection and only with cases which would furnish unambiguous objective evidence of any progress or regress of the infection. The general procedure followed was to begin in each case, after the measurement of the content of the patient's blood in tuberculotropic substances, with very small doses (generally $\frac{1}{10}$th milligramme) of the vaccinating material and to reinoculate at intervals of ten days, retesting the blood on each occasion and in the case of each patient expressing the results in the form of a curve. In our earlier experiments, before we had elaborated the procedure for measuring the opsonic power of the blood, we were necessarily restricted to a measurement of the agglutinating power.

DATA FURNISHED BY THE MEASUREMENT OF THE AGGLUTINATING POWER IN THE CASE OF PATIENTS UNDERGOING ANTI-TUBERCLE INOCULATION.

The method of investigation here in question—and we would note that it had before us been employed by Koch in connexion with inoculations of his T.R. tuberculin—furnishes, it seems to us, indications which have a certain value. An increase in the agglutinating power of the blood is generally, as in the cases tabulated below, obtained in the course of a successful immunisation. It is, however, to be noted that the rise in the agglutination curve may occur long subsequent to the achievement of very marked clinical improvement, and further that such clinical improvement may be obtained quite apart from any sensible increase in the agglutinating power of the blood.

In addition to furnishing indications of successful advance in the direction of immunisation the measurement of the agglutinating power of the patient's blood may afford also indications of regress in the direction of increased susceptibility resulting from an overtaxing of the machinery of immunisation. In exemplification of this we may quote three passages from the history of a patient (E. S., Tables II. and III.) with tuberculous infection of the kidney and bladder whose agglutination curve was followed for nearly 18 months. The patient in question, who had in association with the inoculations set forth in Table II. put on five pounds in weight, received on April 30th, the date on which the record in Table II. closes, 0·025 milligramme, on May 5th 0·05 milligramme, and on May 13th 0·2 milligramme of T.R. tuberculin. In association with the first two of these inoculations the agglutination curve sank away rapidly from 64 to 8, the patient losing at the same time three and a half pounds in weight and suffering from considerable constitutional disturbance. In association with the third of these inoculations the agglutinins disappeared entirely from the blood. On a later occasion, in the beginning of November, 1903, when the general condition of the patient had very markedly improved and when her body-weight had increased by 23 pounds, a similar negative phase effect accompanied by constitutional disturbance was obtained in association with the inoculation of three one-milligramme doses of the T.R. tuberculin on Nov. 2nd, 6th, and 11th respectively. Here the complete agglutination, which was on the first of these dates obtained in a 32-fold dilution of the serum, was obtained after the inoculations only in an eight-fold dilution. Again, in the beginning

of December, when another attempt was made to press the inoculations, the agglutination curve, which had risen again to 32 after the inoculations referred to in the preceding sentence declined in consequence of two one-milligramme inoculations first to eight and then to two and the patient's symptoms were aggravated. A similar decline of the agglutination curve has come under observation also in other cases in association with the premature increase of the dose of vaccine and with the shortening of the interval between successive inoculations.

DATA FURNISHED BY THE MEASUREMENT OF THE OPSONIC POWER OF THE BLOOD IN THE CASE OF PATIENTS UNDERGOING ANTI-TUBERCLE INOCULATIONS.

Much more valuable than the indications which can be gleaned from the measurement of the agglutinating power of the blood are the indications furnished by a measurement of the opsonic power of the patient's blood. While the measurement of the agglutinating power of the blood may fail to furnish indications of an abnormally low resisting power on the part of the untreated patient; and while it may yield only tardy information of the alterations effected in the blood fluids by inoculation; and while it may sometimes altogether fail to distinguish between the patient's condition before and after successful immunisation; the measurement of the opsonic power satisfies, it would seem, all these desiderata.

We have already seen in Table I. that it distinguishes[10] between the tuberculous subject and the person with normal resistance. And we shall see in Table III. that it furnishes prompt and clear indication of the negative phase which supervenes upon inoculation, and again of the positive phase which succeeds the negative phase wherever the organism possesses the necessary power of response. Furthermore, the measurement of the opsonic power of the blood distinguishes clearly between the untreated tuberculous patient and the patient who has made progress in the direction of immunisation. This will appear clearly on comparing, in Table III., the opsonic indices achieved after inoculation with those set forth in Table I.

In conclusion we may note that while we are jointly responsible for the observations set forth in Sections 1, 3, and 4 of this paper, the work which is embodied in Sections 2 and 5 has been separately undertaken by one of us.

THE TREATMENT OF PYO-PNEUMOTHORAX.

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IT is high time that a radical change in our views of the treatment of pyo-pneumothorax should be made and I am glad to see signs that it is gradually taking place. It used to be thought that pneumothorax was almost necessarily a fatal malady and that surgical interference merely hastened the end. No doubt these conclusions were largely due to the fact that pneumothorax was generally the result of the rupture of a tuberculous cavity, to the erroneous belief that when effusion followed it was almost always purulent, and to the faulty teaching of the time that the surgical treatment of empyemata of tuberculous origin was in itself mischievous. The surgery of the chest has shared in the improvement in general surgery and the operation for empyema, whether of tuberculous origin or not, is not now regarded as possessing any special risks. One other fallacy remains to be referred to which also I am glad to see is dying a natural death—viz., that pleuritic effusion, whether it were serous or purulent, had as such a beneficial effect upon tuberculous disease in the lung and checked its progress. No one now allows such views to affect the question of the removal of serous fluid from the chest, still less of pus, and it may be fairly asked why should they still influence the treatment of pyo-pneumothorax.

In pneumothorax we have two factors to deal with, firstly, the sudden effusion of air into the pleura, and secondly, the gradual formation of fluid if the patient survives the shock of onset. The dangers due to the entrance of air into the pleura lie in the first few hours after the occurrence of pneumothorax and are due to the embarrassment of the heart and respiration consequent upon the sudden collapse of one lung and the partial collapse of the other. The embarrassment is sufficient in many cases to lead to death very rapidly and with great suffering from suffocation, ending in over-distension and paralysis of the right heart. These results are as much mechanical as physiological and may be rapidly obviated by the removal of the air by paracentesis, repeated if necessary.

Pneumothorax would not be the fatal disease it often proves to be if these simple conditions were recognised and more wisely and more promptly treated. Even if nothing be done and the patient survives the lungs and heart gradually adjust themselves to the altered conditions and all urgent symptoms pass off. Where the urgent symptoms have subsided or in those peculiar cases where the pneumothorax has developed without initial urgent symptoms the distress is not great nor in any way greater than, if so great as, in the case of a large pleuritic effusion. If no effusion take place into the pleura the air is gradually (sometimes very rapidly) absorbed and recovery is complete. If effusion develop it may be serous, sero-purulent, or purulent in about equal proportions. Where the effusion is serous—i.e., in hydro-pneumothorax—the air may be absorbed and the case gradually transform itself into one of serous effusion. This may then be absorbed spontaneously or after treatment of the usual kind. I do not propose to say more of this class.

It is to the treatment of pyo-pneumothorax that I wish especially to address myself. Here the air itself is no longer producing any symptoms; the hectic fever which is usual is attributed to the tuberculous disease, which has been the cause of the pneumothorax, and consequently is regarded as requiring no special treatment. Yet the fever is due in most cases simply to the presence of retained pus, as in simple empyemata, and this is proved by its disappearance or diminution as soon as the pus is evacuated. The risks of pyo-pneumothorax arise, therefore, from the purulent effusion and the question presents itself, Why should an empyema occurring after pneumothorax not be treated on the same general lines as an ordinary empyema? Why should the pneumothorax make any difference?

The reasons given why pyo-pneumothorax should not be operated on were usually these: (1) that the patient was tuberculous; (2) that the free incision of the pleura in tuberculous cases often accelerated the progress of the disease; and (3) that compression of the lung by fluid checked the development of tubercle in the collapsed lung. The first objection states a fact and has as such no bearing on the case. The two other objections are based on erroneous views. There is no evidence whatever that compression of the lungs checks the growth of tubercle in the compressed lung, while, on the contrary, tuberculous mischief often develops and makes rapid progress in the opposite lung. The treatment of pyo-pneumothorax on the same lines as empyema must not be settled by theoretical assumptions but determined by practical experience. High authorities of not so many years ago used to assert that the opening of the side in pyo-pneumothorax not only did no good but hastened the end which was in every case almost inevitable, and that while some few cases did recover if left to themselves none recovered after operation. This seems to me to have been a traditional superstition, the origin and reason of which I cannot trace. It was not so long ago when the treatment of empyema by incision was condemned on much the same grounds and when the most favourable cases were supposed to be those in which the pus had made its own way out, not externally, but through the lung. We know that if an empyema be left long unrelieved the results of treatment at this late stage are usually unsatisfactory. But this would nowadays be called a case of neglected empyema. The same is true of pyo-pneumothorax. If the pus in these cases be left long in the chest the condition is that of a neglected empyema and the results cannot be expected to be better. I have for many years advocated the treatment of pyo-pneumothorax on general surgical principles by the evacuation of pus and free drainage and I have shown by published cases the success of such treatment, even in neglected cases where the pus had been deliberately allowed to remain in the pleura for months. One remarkable case of this kind I published some years ago. The patient, who was a man in middle life, had been deliberately left for months with the pyo-pneumothorax untreated and condemned

[10] It will not, however, invariably do so.

to death. Unfavourable as the case was I incised, washed out, and drained the side. The man made a good recovery but was left with a sinus about a quarter of an inch in diameter, but several inches long, extending towards the root of the lung, where a tuberculous focus existed. With the exception that he had to wear a tube he became well and strong, returned to work, and continued in light occupation for two or three years, when the phthisis became active again and killed him.

I may remark of this case in passing that excision of a portion of rib was not practised at the time of operation, that it never became necessary, and that no removal of ribs subsequently would have enabled the fistulous tract to close. One such case would arouse thought, but a series of such cases should establish the views I advocate. My own experience does this and I have no doubt that pyo-pneumothorax ought to be, and will be, treated hereafter on the same general lines as empyema and with much more favourable results.

These remarks have been suggested by a paper recently read by Professor D. W. Finlay at the Clinical Society of London. If the views I here express and have so long advocated and which Professor Finlay supports had not been controverted I should not have thought it necessary to write these notes. But it is clear from the question asked, "whether it was worth while to go through so much for the sake of so little benefit," that the true nature of these cases is not generally comprehended or the principles of treatment grasped.

I will conclude by a few general rules for the treatment of pneumothorax. 1. In the early stage when suffocation threatens, the air should be removed and the pressure relieved by paracentesis, repeated if necessary; if this be not sufficient it is justifiable even to lay the side fully open rather than to lose the patient. 2. In the later stage when effusion forms its nature should be at once ascertained. 3. If the effusion be serous the case should be treated on the general lines of serous effusion. 4. If it be purulent evacuation at once by free incision should be carried out. A piece of rib should not be excised, for it is rarely necessary. If it be necessary no more should be removed than is required to get free drainage. 5. An aspirator should never be used in pneumothorax in any circumstances; it is unnecessary and dangerous.

If pneumothorax be treated on these common-sense lines and without subservience to antiquated theories I am convinced that the results will be greatly improved and pneumothorax cease to be regarded so gravely as it now is.

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DRAINAGE OF THE PERICARDIUM.

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SINCE my contribution, with Dr. Arthur Latham, to THE LANCET of March 21st, 1903, p. 798, in which I described how the operation suggested by Dr. Cyril Ogle and Mr. Herbert Allingham had been performed by me with slight modifications upon a man suffering from pericardial effusion of great quantity and of long duration, two other cases have increased my experience of this operation. I venture to publish my further experiences because I think it will be recognised that the operation, with such slight modifications as may be necessary in individual cases, must become the routine method for drainage of the pericardium. It can be claimed that the operation is simple and of short duration, and that it affords excellent drainage from the lowest available spot of the pericardial cavity. A few additional notes on the operation itself may not be out of place before giving a short summary of my two cases.

Incision.—I have so far employed the vertical incision described in our previous paper in preference to one along the lower border of the seventh costal cartilage—(1) because it gives a very convenient access to the pericardium without unduly interfering with the attachments of the rectus abdominis; and (2) because it enables the operator to proceed at once to the removal of the sixth costal cartilage if this be necessary to insure a more careful and extensive examination of the pericardial contents.

Seventh costal cartilage.—From my experience, small as it is on the living subject, I would strongly advise the removal of this cartilage in all cases except those of small children or infants.

Internal mammary and superior epigastric vessels.—These are pushed towards the middle line or divided and the cellular interval — "costo-xiphoid space" — between the seventh costal cartilage, ensiform cartilage, and the attachment of the diaphragm is broken into. The triangularis sterni, with the intercostal membrane and muscle, is divided in the line of the incision up to the sixth costal cartilage.

Incision into the pericardium.—Carefully pushing aside both the right and the left pleura (*vide* Case 2) the operator, in order to avoid all danger of opening the peritoneal cavity, should incise the pericardium just above the level of the base of the ensiform cartilage and with his finger enlarge this incision downwards into the costo-xiphoid space.

Drainage.—In each case I have used an empyema tube as thick as the forefinger. My operations have all been performed for simple effusion and in these it seems unnecessary to leave the tube in for more than three or four days. In one case the patient complained of a little pain which he said was relieved by removing the tube, but in no case, so far as we could see, was the heart embarrassed by the presence of a tube.

Severity and duration of the operation.—None of my subjects, though each in an almost desperate condition, seems to have been any the worse for the actual operation—indeed, two of them were distinctly less distressed immediately after it. No ill, but rather good, effects were produced upon the circulation by manipulation of the heart. About 20 minutes should suffice in ordinary cases to complete the operation and, other things being equal, I should say that the younger the patient the less time required for the operation. I need hardly emphasise the importance to the operator of a skilled and resourceful anæsthetist.

CASE 1.—The patient, a man, aged 31 years, was suddenly seized by an attack of pneumonia on May 11th, 1904. On the 14th he was admitted into St. George's Hospital under the care of Dr. F. G. Penrose. The left lung was chiefly involved. On June 2nd his notes read: "The temperature remains high; there is considerable cyanosis and dyspnœa; cardiac dulness exists four fingers' breadth to the right of the sternum; the heart sounds are muffled." After a consultation between Dr. Penrose, Dr. H. D. Rolleston, and Dr. Ogle I was asked to explore the pericardium. I reached the pericardium by the method described above, but I removed a portion of the sixth as well as the seventh costal cartilage. Only three or four ounces of fluid were withdrawn. The right heart was bound down by rather firm adhesions to the parietal pericardium both laterally and on the diaphragm. The left heart, both ventricle and auricle, was free and smooth on the surface. Many of the adhesions between the heart and the pericardium were broken down and a tube was inserted. The operation lasted 20 minutes. The patient recovered slowly and steadily from the day of the operation. Whether this definite improvement in his condition was *propter hoc* or *post hoc* it is difficult to ascertain; nor is it possible to say without further experience what part, if any, the breaking down of adhesions between the heart and the pericardium played in the subsequent improvement. The tube was removed on the 6th and the stitches on the 9th. On the 19th the patient was able to go to the seaside. When seen recently he was making rapid progress.

CASE 2.—The patient, a boy, aged 12 years, was admitted into St. George's Hospital on July 4th, also under Dr. Penrose. He had all the signs of pericardial effusion, with marked cyanosis and dyspnœa. There was a history of rheumatic fever with heart troubles. On the 6th I operated as above with a vertical incision, finding it necessary to remove the seventh costal cartilage only. After pushing aside the left pleura I incised the pericardium but in doing so wounded the *right* pleura. The patient was no worse for the wound, which was evidently small, and the pneumothorax disappeared within two days. The fluid in the pericardium was under pressure and rapidly escaped. A tube was introduced and kept in until the 8th. The operation lasted 15 minutes, during the last five of which oxygen was administered. The patient seemed very little better for the operation and his dyspnœa and exhaustion increased day by day till his death on the 11th. At the post-mortem examination there was no evidence of pneumothorax; the wound of the pericardium was not recognisable and the parietal and visceral pericardium were adherent. There was much endocarditis with

valvular verrucosities. The right pleura projected beyond the left side of the sternum down to the level of the seventh costal cartilage.

It is not at all common for the right pleura to extend so far towards the left side at this level, but the case shows that the operator must be careful to push aside the right pleura as well as the left. In this case the thorough exploration of the pericardial cavity and the heart was remarkably easy and the fingers could reach even to the back of the heart.

In conclusion, I must thank Dr. Penrose for his courtesy in allowing me to use the notes of his cases.

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ON THE

ACTION OF VENOMS OF DIFFERENT SPECIES OF POISONOUS SNAKES ON THE NERVOUS SYSTEM.

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III.—VENOM OF BUNGARUS FASCIATUS (BANDED KRAIT).

IN a previous communication to THE LANCET[1] we intimated our intention of carrying out an examination of the nervous system of animals which had died from injections of venoms from different species of poisonous snakes, with the object of attempting to co-relate any changes which might be found with the symptoms observed during life. In that paper and in a subsequent one[2] we detailed the histological appearances of the nervous system in cases of cobra venom intoxication and advanced the degenerative changes found as evidence in favour of the view that the cobra poison owes its lethal property to a specially selective action on certain motor neurons. In the present paper, working in a manner similar to that which we have already described, we purpose to take up the study of the venom of bungarus fasciatus, pointing out the chief symptoms and detailing the changes which can be demonstrated in the nervous system in cases of intoxication with this poison. This snake belongs to the genus bungarus, which is closely allied to the genus naia, of which genus the cobra is a species. These two genera belong to the same subfamily of colubridæ—namely, elapinæ. While, however, the cobra and bungarus fasciatus are so closely allied there are good grounds for thinking that their poisons differ from one another both in constitution and in physiological action. For it has been shown[3] by one of us that a precipitin prepared with cobra venom and causing a marked precipitin with this poison gives no coagulum when mixed in the same way with the venom of bungarus fasciatus. It has also been demonstrated[4] that a serum strongly antitoxic for cobra venom in all its actions has no neutralising effect either for the general action *in vivo* or for the hæmolytic action *in vitro* of the venom of bungarus fasciatus. Further, as we shall presently see, the symptoms of cobra venom intoxication are by no means identical with those of poisoning with the venom of bungarus fasciatus. We have still, however, to ascertain if any difference can be observed between the histological changes in the nervous system caused by these two poisons. The venom of bungarus fasciatus is peculiarly suited for the work in which we are at present engaged. In the first place, when a minimum lethal dose of this poison is injected into an animal the fatal result is much longer delayed than is the case with the venoms of any of the other Indian poisonous snakes. In the second place, the symptoms which are observed in the more or less chronic disease which follows an injection of a comparatively small quantity of this poison point to a serious interference with the proper functioning of the nervous system. In the third place the effects of the action which the venom has on the blood and on the circulatory apparatus in general are much less evident than is the case with the other poisons with which we have worked. The symptoms, therefore, which result from the action of the poison on the nervous system are not masked by the symptoms resulting from its action on the circulatory apparatus. For these reasons it appeared probable that the histological changes in the nervous system in cases of intoxication with this poison would be well marked and easily demonstrable and that they could be brought forward as quite an adequate pathological cause of the symptoms and of the fatal result. The material which was used in these experiments was collected and conserved in the manner we have already described in the case of cobra venom.

The experiments which were undertaken in order to study the symptoms of intoxication with the poison of bungarus fasciatus were made principally on monkeys and rabbits, although a few pigeons and rats were also used. The injections were made both intravenously and subcutaneously. In this paper we propose to give only a short summary, as far as symptoms are concerned, of the observations made under these varying conditions. A detailed account of the experiments[5] has already been published by one of us. Cases of intoxication with the venom of bungarus fasciatus may be divided into three classes, each class showing its distinctive symptoms. The first class is comprised of those cases in which death follows rapidly—that is to say, in a few minutes—after an intravenous injection of a comparatively large amount of poison. The symptoms which are seen in these cases are of sudden onset and soon terminate in death. Loss of equilibrium, staggering, and violent general convulsions are the most prominent. Death takes place within a few minutes after the injection of the poison. On careful post-mortem examination there is found an extensive intravascular thrombosis chiefly affecting the pulmonary arteries and the right heart. We are dealing here, then, with a similar phenomenon to that which takes place when daboia venom is injected intravenously in small amount or subcutaneously in larger amount.[6] There can be no doubt that the symptoms observed and the fatal result are in this case due to the intravascular clotting and that it would be useless to look for any degenerative changes in the nervous system. In the second, or what may be called the acute nervous, class of cases of intoxication with the venom of bungarus fasciatus death takes place within the first 48 or 72 hours after the injection of the poison. The interval between the time of the injection of the venom and the fatal result varies according to the amount of venom injected and the mode of injection. With comparatively large amounts of venom death takes place in 20 minutes or half an hour after intravenous injection, while with small quantities death may be delayed for two or three days. The symptoms which one observes in all these cases point unmistakably to an action of the venom on the nervous system and are indistinguishable from the symptoms which are observed in cases of cobra venom intoxication. There may or may not be slight swelling at the site of inoculation. Profuse salivation and sometimes vomiting are described by Wall[7] to be common symptoms in dogs bitten by this snake. Ultimately paralysis, accompanied by twitching of the muscles, develops; the paralysis advances rapidly and death follows from paralysis of respiration. An examination made immediately after death shows the heart to be still beating; this pulsation may go on for some time after the thorax has been opened. With the exception of a slight pinkish exudate at the site of inoculation, which, however, is not always present, no gross lesion can be found anywhere.

The nervous systems of two monkeys which showed the above symptoms were examined and the methods of fixing and staining in these and in the subsequent cases are the same as described in our previous papers. The cases are as follows.

TABLE I.—*Showing Details of Injections.*

—	Weight in grammes.	Dose per kilogramme.	Time before death.
		Milligrammes.	
Monkey No. 14 ...	3110	5 subcutaneously.	14½ hours.
,, ,, 15 ...	2480	6 ,,	44 ,,

[1] THE LANCET, Jan. 2nd, 1904, p. 20.
[2] THE LANCET, August 20th, 1904.
[3] THE LANCET, August 16th, 1902, p. 431, and April 2nd, 1904, p. 916.
[4] Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New series. No. 5, 1903. Ibid. No. 10, 1904.
[5] Ibid., No. 7, 1904.
[6] Ibid., No. 3, 1903.
[7] Wall: Indian Snake Poisons, their Nature and Effect. London. 1883.

Monkey, No. 14, weight 3110 grammes, died in 14½ hours after subcutaneous injection of five milligrammes (per kilogramme) of venom of bungarus fasciatus. The microscopic appearances in this case were those of an acute chromatolysis of ganglion cells, somewhat similar to, but considerably more advanced than, the most extreme changes found with cobra venom, as, for example, in Monkey No. 7 of our second series. In the spinal cord the vast majority of the ganglion cells were without any definite granulation. In the lateral groups of each anterior horn, however, some eight to ten cells were to be seen deeply and rather diffusely stained, with an ill-defined granulation still present—cells evidently in the process of having their granules dissolved out. But with the exception of those few cells in the lateral groups all the others had no suggestion of granulation whatever and many of them were much paler than normal. The degenerative change seemed more advanced in the more central cells, for amongst these several were to be seen with indented edges and otherwise considerably vacuolated. In spite of these changes the nucleus of the cell seemed little altered. Its staining was of the same intensity as that of the rest of the cell, and in most cases it was still central even when the body of the cell was much broken up. These changes seemed fairly uniform throughout the whole of the cord but possibly rather more advanced in the lumbo-sacral region than in the cervical. In the cerebral cortex the appearances were much the same as in the cord. Scarcely one normal cell was to be seen. Many of the larger ganglion cells were deeply and diffusely stained with the remains of granules in various stages of disintegration in the diffusely stained plasma. These cells were similar to the deep-stained cells in the lateral groups in the cord, but in some the granules were more definitely fragmented and some had a marginal nucleus. The smaller cortical cells seemed to be more affected, paler, and with more vacuolation. In the medulla the degenerative changes were less marked, but the vast majority of the cells in the motor nuclei showed an early chromatolysis, being deeply and diffusely stained with ill-defined Nissl granules. They showed, however, but little vacuolation, and the proportion of "ghost" cells was much smaller than in the cortex or cord. The degenerative changes in nuclei of the pons seemed more advanced than in the medulla but less than in the cortex or cord. In this case also there seemed to be a slight though definite increase of the connective-tissue cells throughout the grey matter of the central nervous system. These were most numerous round the ganglion cells, especially those in the later stages of degeneration. They were frequently seen indenting the margins of the ganglion cells and sometimes in their interiors. With Busch's stain there was no reaction for degenerate fibres throughout the cord, the medulla, the pons, or the cerebral or cerebellar cortices. The anterior and posterior roots were also unaffected. The peripheral nerves showed practically no increase of the internodal nuclei and there was no definite evidence of any change in the myelin or axis-cylinders.

Monkey No. 15, weight 2480 grammes, died in 44 hours after subcutaneous injection of six milligrammes per kilogramme of the venom of bungarus fasciatus. The appearances here were much the same as in Monkey No. 14, though possibly suggestive of a rather more advanced degeneration. There were fewer of the more deeply stained cells in the cortex and cord (not more than from three to four in each lateral group of anterior horns) and more of the "ghost" cells. The diffuse staining, too, in the more deeply stained cells was less marked and the deficiency and fragmentation of the Nissl granules were more apparent. There was, however, almost none of the dust-like granulation seen in a more chronic chromatolysis. The peripheral nerves were similar to those in Monkey No. 14.

In the third, or what may be called the chronic nervous class of cases of intoxication, we have to deal with a condition which is never seen in cobra venom poisoning nor, in fact, in poisoning with any other venom with which we have worked. After the injection of a small quantity of cobra venom, if the animal does not die within two or three days at the longest recovery invariably takes place. Not only is this the case but recovery from any symptoms which may have developed is very rapid, the normal state of health being soon reached. With the venom of bungarus fasciatus, however, quite a different clinical picture is observed. After the injection of a small quantity of this poison death may be delayed for from six to 12 days. In these cases there is, as a rule, an interval varying from two to six days in which no marked symptoms are observed, the animal apparently being in good health. It will be observed, however, that during this interval, which might almost be compared to a period of incubation of a bacterial disease, the animal does not eat much and is more or less depressed. Further, if carefully weighed it is ascertained that there is a rapid and progressive loss of weight. After this interval a comparatively chronic disease, which almost invariably ends fatally, begins. The symptoms which develop during this late period of intoxication are not in the least like the symptoms seen in the acute cases of poisoning either with cobra venom or with the venom of bungarus fasciatus itself. There are loss of appetite and great depression, but marked muscular weakness and atrophy, extreme emaciation and loss of weight are the prominent symptoms. Wall[8] has noticed that there is a marked diminution in the urinary secretion and that irregular elevations of temperature are sometimes observed. Purulent discharges from the eyes, nose, and rectum are late symptoms. The emaciation, loss of weight, and muscular atrophy progress rapidly and as a rule end in death after a few days of illness. Owing to the extreme muscular atrophy and consequent weakness it is always difficult to determine if paralysis is present as well. In some cases, however, we have been able to satisfy ourselves that paralysis is present and becomes complete before death. It is evident from the above description that in cases of this kind the degenerative changes in the nervous system are likely to be more marked than in the more acute and more rapidly fatal cases of venom poisoning. The symptoms all point to a serious interference with the functions of the nervous tissues—in fact, to a direct action of the poison on these tissues. This hypothesis is further supported by the facts which have been pointed out by one of us[9]—namely, that the venom of bungarus fasciatus has only a slight destructive action on the red blood corpuscles and that the effects of its action on the blood coagulability are not of such a nature as to lead to the production of any symptoms. The proof of the direct action of the poison on the nervous system is afforded by the following five cases, in which we have carefully examined the histological appearances found in the central nervous system and in the peripheral nerves.

TABLE II.—*Showing Details of Injections.*

—	Weight in grammes.	Dose per kilogramme.	Time before death.
		Milligrammes.	
Monkey No. 16 ...	2040	4·0 subcutaneously.	3½ days.
,, ,, 17 ...	1640	3·7 ,,	5 ,,
,, ,, 18 ...	2150	3·0 ,,	6 ,,
,, ,, 19 ...	3200	3·0 ,,	8 ,,
,, ,, 20 ...	1260	2·5 ,,	10 ,,

Monkey No. 16, weight 2040 grammes, received subcutaneously four milligrammes (per kilogramme) of the venom of bungarus fasciatus, dying three and a half days later. The appearances throughout the nervous system were much the same as in Monkeys Nos. 14 and 15, though in this case the degenerative process was possibly rather more advanced. In the cord there were almost none of the more deeply stained ganglion cells seen in the lateral groups in the former cases, these having more or less completely lost their granules. The proportion of "ghost" cells, too, was greater, and vacuolation and general disintegration of the cells were more abundant. The connective-tissue cells were also rather more numerous, being specially so round the more degenerate ganglion cells, but they were also to be seen in the interiors and indenting the margins of other ganglion cells. The ganglion cells of the cortex presented much the same appearances as those of the cord. The majority were pale and devoid of granulation; some were still rather diffusely stained, and some stained deeply and well but were quite devoid of their Nissl granules. Vacuolation was fairly abundant. The pons and medulla were also affected, the ganglion cells of their nuclei being likewise devoid of granulation. Vacuolation, however, was rare and generally the degenerative process was not so extreme as in the cord or cortex. With Busch's staining there were no signs of degenerated fibres in the cord, medulla, pons, cerebrum, or cerebellum. The anterior and posterior roots were also intact. In the peripheral nerves

[8] Ibid. [9] Loc. cit.

there seemed a very slight increase of the internodal nuclei but there was no evidence of any definite change in the myelin or axis cylinders.

Monkey No. 17, weight 1640 grammes, received subcutaneously 3·7 milligrammes of venom of bungarus fasciatus. Muscular atrophy was very marked in this case, the animal losing 300 grammes in weight in the five days that elapsed before death. The microscopic appearances were very similar to those in the last (Monkey No. 16) and the degree of the degenerative change was about the same in both. The cortical cells in this case were little more than skeletons and some were a good deal vacuolated and indented at their edges. In the cord the ganglion cells were practically devoid of granulation, though in a fair proportion their cell framework was rather better stained than in the cells of the cortex. The changes in the nuclei of the pons and medulla were not so advanced as in the cortex and cord.

Monkey No. 18, weight 2150 grammes, received subcutaneously three milligrammes (per kilogramme) of venom of bungarus fasciatus and died in six days. The degenerative changes seemed almost more marked in this case than in the two preceding ones. In the cord scarcely one single cell was to be found with even two or three well-defined Nissl granules and the most of the cells were either "ghost" cells or more deeply stained "ghost" cells—that is, cells without Nissl granules but with the cell framework fairly deeply stained. There was a definite proportion of disintegrating cells, many of which were mere shadows with no properly defined limiting margin and sometimes with no nucleus. The same changes were met with in the cortical ganglion cells and to a less degree in the nuclei of the pons and medulla. The connective-tissue cells were as in the preceding cases and there was a doubtful increase in the internodal nuclei of the peripheral nerves.

Monkey No. 19, weight 3200 grammes, received subcutaneously three milligrammes (per kilogramme) of the venom of bungarus fasciatus and died in eight days. There were signs of paralysis after five days but it was not complete till the end of the seventh day. The appearances in the ganglion cells were similar to those in the last case, the chief features being absence of chromatic granules with a certain amount of vacuolation and disintegration, particularly in the smaller cortical cells and in the more central cells of the anterior horns of the cord. In the medulla vacuolation was beginning to appear in the cells of the motor nuclei. With Busch's staining there was no reaction for degenerate fibres in the cord, medulla, pons, or cerebral or cerebellar cortices. The anterior and posterior roots, too, seemed unaffected. In the peripheral nerves there was no certain evidence of degenerative change in myelin or axis cylinders, neither was there an undoubted increase in the internodal nuclei.

Monkey No. 20, weight 1260 grammes, received subcutaneously 2·5 milligrammes of the venom of bungarus fasciatus. Death took place in ten days, the animal having lost 300 grammes in weight in that time. There seemed nothing fresh to report in this case, for the appearances were much similar to those in the preceding monkeys. The degenerative changes were certainly not less marked and possibly rather more extreme. In the cord not one normal cell was to be seen, almost all of them having lost their chromatic granules, though the framework of some of them stained quite intensely. Towards the inner aspect of the anterior horns the cells were much paler, the vast majority being mere shadows and many having no definite margin. Vacuolation was marked and some cells were so much disintegrated as to be represented by little more than a nucleus. The farther advanced the degeneration the greater seemed to be the number of connective-tissue cells surrounding the ganglion cell. It was impossible to estimate accurately if there was any loss in the number of the ganglion cells in the anterior horns but if there was it was probably not at all considerable. In the cervical region of the cord some of the sections included the posterior root ganglia. But the changes in the cells of these ganglia were very much less marked than in the ganglion cells of the anterior horns. Indeed, many of the posterior root ganglion cells seemed quite normal and few showed any marked degeneration. The contrast between the condition of the anterior horn cells and the posterior root ganglion cells was very striking and is a point to which we would draw special attention. The changes in the cortical cells were the same as in the cord. In the nuclei of the medulla and pons there was a quite definite chromatolysis but the degeneration was by no means so extreme as in the ganglion cells of the cortex or the anterior horns of the cord. In the median and posterior tibial nerves there seemed little, if any, increase of the internodal nuclei, but in the vagus this increase, though slight, seemed fairly definite.

In all these cases, then, there is undoubted evidence of an acute chromatolysis involving the motor ganglion cells of the cortex, the pons, the medulla, and the cord. In each case the chromatolysis was subsequent to an injection of the venom of the bungarus fasciatus and there seems little reason to doubt that the venom is the cause of the degenerative changes. We may take it, therefore, that this venom has a specially selective action on the motor ganglion cells of the central nervous system. In making this statement, however, we do not mean to assert that the poison only affects motor cells and that the sensory centres, for instance, are quite intact. But the symptoms observed during life were those of atrophy and paralysis of muscles and our main object has been to attempt to correlate these with the action of the venom on the motor nervous system as evidenced by the histological appearances found therein. To the condition of the sensory centres we might with advantage have given more attention but accurate study of sensory symptoms in dumb animals is manifestly a somewhat difficult matter and without this the pathological findings have not the same meaning, and in any case the implication or otherwise of a sensory centre is of little moment in considering the fatal action of the poison, which, after all, is the point of greatest importance. Still, in passing, we would note that the ganglion cells of the posterior root ganglia in Monkey No. 20 (the animal of the series which showed the most extreme degeneration in its motor cells) were but little affected. This observation is therefore in favour of the view that the venom of bungarus fasciatus acts chiefly on motor cells.

Further, the main action of the venom seems to be on the motor cell rather than on its peripheral nerve fibre. Our evidence on this point is not conclusive as we have not yet examined the terminal fibres of the motor nerves. But we have shown that, with the exception of the vagus in Monkey No. 20, which shows some slight increase of the internodal nuclei, there is in the other animals no certain evidence of a degenerative change in the nerve trunks. This observation is of interest when we compare the action of bungarus fasciatus venom with that of cobra venom, for we showed in a former paper that in the case of the latter poison, even with comparatively little change in the ganglion cells, there seemed some reaction in the peripheral nerve trunks, as evidenced by an increase of their internodal nuclei. But the venom of bungarus fasciatus, even with very extensive changes in ganglion cells, gives almost no change in nerve trunks. It would seem therefore that it must have little or no action on peripheral nerves, considerably less than has cobra venom and much less than certain other toxins which also act on ganglion cells.[10]

As regards this degenerative process which we have described in the motor ganglion cells we may say that its intensity seems to depend less on the quantity of the venom injected than on the length of time the poison has to act on the nerve cell. This series of cases bears that out, for it would seem to show the chromatolysis to be uniformly more advanced the longer the animal has lived after receiving the poison—i.e., the smaller the dose of poison injected. We may say, therefore, that up to a certain point the intensity of the degenerative process is in inverse proportion to the dose of the venom. In this respect the action of the venom of bungarus fasciatus is similar to that of cobra venom. Indeed, if we consider the sections from the two series of cases together we find that we have a set of specimens illustrating in a very complete manner an acute chromatolytic process. The earliest appearance of degeneration we may say is seen in Monkey No. 3, developing in Monkeys No. 2, 1, and 7 (cobra series), and still progressively more marked in Monkeys No. 14, 15, 16, 17, 18, 19, and 20 (present series). True, there is a slight gap in the specimens where the cobra series ends and the other begins—i.e., between the sections of Monkey No. 7 (cobra venom: dead in six and a half hours) and those from Monkey No. 14 (bungarus fasciatus venom: dead in 14½ hours). But the degenerative process is so well indicated and

[10] In this connexion see a paper by one of us—A Contribution to the Etiology of Beri-beri, THE LANCET, July 31st, 1897, p. 240, in which it is shown that a very marked neuritis in nerve trunks can be produced within five days by injection of the toxins of a white staphylococcus.

illustrated by the sections from the cases preceding and succeeding these, as to make it very apparent that degeneration as seen with the venom of bungarus fasciatus is nothing but a more extreme degree of what is seen at an earlier stage with cobra venom. This corresponds in a manner to the statement made in a former part of this paper—that the symptoms in the second (acute nervous) group of bungarus fasciatus poisoning—i.e., cases dying within from two to three days—are indistinguishable from those of cobra poisoning.

In the third or chronic nervous class of cases there is nothing seen in the ganglion cells to distinguish them from the cells in the acute cases more than a further advance of the chromatolytic process. It would seem, therefore, that from the histological point of view the venom has a similar action on the ganglion cells in cobra poisoning and in both groups—i.e., acute nervous and chronic nervous—of bungarus fasciatus poisoning, and it is probable that the variation in the symptoms depends chiefly on the length of time the animal lives after receiving the venom. For example, when cobra venom is given in comparatively large doses the vital centres become so rapidly involved, and death so quickly supervenes, that there is no time for degenerative changes to develop in other motor centres which, as the symptoms show, are even earlier paralysed than the respiratory centre. With smaller doses of cobra venom the paralytic action on the vital centre is delayed and so time is given (two hours at least are required) for the chromatolysis to appear. The same applies to the larger doses of bungarus fasciatus venom—i.e., doses that kill within from two to three days; in these cases there is time to get a very marked degenerative reaction in the ganglion cells. With smaller doses of this venom death is delayed for a week or ten days. Such a length of time permits of very extreme degenerative changes developing, but it also allows of another change in the form of a pronounced atrophy in muscle fibres. We do not know exactly on what day the degeneration in the motor ganglion cells first appears in these cases and how long it may have been going on, but we may safely say that for several days a large proportion of the cells have been at least devoid of their Nissl granules. This, we take it, must mean some loss in the functional activity of these cells and if that is so it will also mean to the muscle fibres functional abeyance of their trophic centres. The condition, indeed, will be, for all practical purposes, an acute polioencephalitis et myelitis, both from the symptomatological and histological points of view. In this way we explain the extreme and progressive muscular atrophy so characteristic of this "chronic nervous" group of cases. So that not only is time a factor in developing the chromatic changes in the ganglion cells but it also allows of another feature to be added in the form of the atrophy in the muscle fibres.

From what we have said above we do not mean to imply that the action of bungarus fasciatus venom on motor cells is similar in every respect to that of cobra venom, for we have been discussing chiefly the histological appearances produced by these two poisons. The symptoms produced by each are certainly in many respects very similar but as we have already pointed out cobra venom acts quickly and when recovery takes place it does so rapidly. Its antivenom, too, quickly neutralises the action of the venom. We have shown in our former paper that even the ganglion cells are again normal within 24 hours after giving the antivenom. With bungarus fasciatus venom, on the other hand, its action is delayed, the symptoms are slower in their onset, and when recovery takes place it does so much more slowly. It would seem as if the combination of this venom with the nerve tissues were much closer or firmer than that of cobra venom, and possibly less easily displaced. We have yet to see what will be its reaction to its antivenom when we have obtained a supply of that substance.

We have said in a preceding paragraph that our two series of sections, those from the animals killed with cobra venom and those with bungarus fasciatus venom, illustrate in a fairly complete manner the acute chromatolytic process in ganglion cells. And before concluding it might be of interest to give a *résumé* of the various changes through which the cell passes as they appear to us in these sections. Of course, one does not see the degeneration going on, and so we can only draw deductions from noting in different ganglion cells what we judge to be the successive stages of the process. In the first place, then, there is a deep and rather diffuse staining of the ganglion cell. In this diffusely stained plasma the Nissl granules are to be seen as deeper stained bodies, still quite consistent but with rather ill-defined edges. The Nissl bodies next seem to begin to dissolve in the cell plasma and they suggest the appearance of pieces of metal being acted upon in a strong acid medium. This leads to the next stage, which is still that of a diffusely stained cell but with smaller granules in the plasma. Then the granules and the diffuse staining begin to disappear and leave a skeleton cell with its margin, reticulum, and nucleus somewhat deeply stained but very well differentiated. The staining later becomes gradually less intense till we reach the stage in which the cell is little more than a shadow of its former self—the typical "ghost" cell. Vacuoles next appear in the body of the cell and its margins become indented as if little pieces had been snipped out. Then portions of the cell disappear altogether and leave little more than a nucleus with the remains of the cell reticulum attached to it. All this time the nucleus, at least in a large proportion of the cells, seems to be little affected otherwise than is shown by a varying intensity of its staining. It remains central, is only exceptionally found at the periphery of the cell, and though it is sometimes lost to view in the diffuse staining of the earlier stages it is almost always to be seen in the later stages of degeneration. Vacuolation is most seen in the pale ("ghost" cell) stage but it is also to be met with in the more deeply stained cells. The connective tissue elements of the grey matter seem to play a somewhat secondary part in this degenerative process. They may be slightly increased in number round the ganglion cell in its earlier stages of chromatolysis but this increase is not in the least considerable and it is not till vacuolation comes on and the cell begins to break up that they are seen to cluster definitely round the disappearing cell. During this later stage, and sometimes also at an earlier stage, they are found indenting the margins and are sometimes right inside the body of the cell.

The chromatolytic changes just described seem to be uniformly most advanced in the smaller cortical cells and in the cells of the more central groups in the anterior horns of the cord. The larger cortical cells and certain of the cells in the lateral groups of the anterior horns seem to be considerably more resistant to the toxin, for they are slower in showing degeneration and when it does appear it is almost never so extreme as in those other cells. Of the motor nuclei in the pons and medulla the ganglion cells of the third and fifth nuclei were usually affected about equally with those of the cortex and cord. But the seventh, tenth, and twelfth nuclei showed changes more seldom, at a later period, and of a less intensity than any of the other motor cells in any part of the central nervous system. Finally, we wish again to express our indebtedness to Dr. J. Lindsay Steven for the use of the laboratory in connexion with his wards in the Glasgow Royal Infirmary in which part of this investigation was carried out. One of us (W. K. H.) has also to acknowledge a small grant towards expenses incurred from the Carnegie Trust.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum propriss collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

NORTH-EASTERN HOSPITAL FOR CHILDREN.

TWO CASES OF SEPTIC ARTHRITIS OF THE KNEE-JOINT TREATED BY ASPIRATION.

(Under the care of Mr. DOUGLAS DREW and Mr. J. P. LOCKHART MUMMERY.)

FOR the notes of the cases we are indebted to Mr. Hugh F. Powell, house surgeon.

CASE 1.—The patient, a boy, aged four years, was admitted into the North-Eastern Hospital for Children on July 22nd complaining of pain in the left knee and inability to walk. The history of the case was as follows. On July 19th he first complained of pain and his mother noticed that the knee was swollen. There had been no

injury to the joint so far as the mother was able to ascertain. On examination the knee was found to be swollen, hot, and red and there was evidence of fluid in the joint. The patient was unable to bend the knee. A septic wound was found on the back of the head the result of a fall four or five days previously. No other joint was affected and there was no other sign of injury about the body. The temperature was 102·6° F. Aspiration of the knee-joint was performed with an ordinary exploring syringe and about two drachms of sero-purulent fluid were withdrawn. Agar tubes were inoculated with the fluid and incubated and the resulting growth was found to be that of staphylococcus pyogenes albus. The temperature fell to normal within three days and the joint, except for a slight stiffness, resumed its natural appearance in ten days. The wound on the head healed within a few days of admission to hospital.

CASE 2.—The patient, a boy, aged nine years, was admitted to hospital on July 28th with the history of having run the prong of a garden fork into his right knee on the 25th. The joint swelled rapidly and became hot and painful. On examination the knee could only be slightly flexed and there was evidence of fluid in the joint. A small superficial wound, covered with scab, was present on the outer side of the patella. No other joint was affected. The temperature was 101·2° F. The knee was aspirated as in Case 1 and about one ounce of sero-purulent fluid was withdrawn. Both agar and blood serum tubes were inoculated and incubated and when examined were found to contain growths of staphylococcus albus and also a luxuriant growth of bacillus subtilis. As in the first case, the temperature rapidly fell and the knee quickly resumed its normal state, both patients walking about again in less than three weeks. The only other treatment adopted in both cases beyond aspiration was the use of a back splint and firm bandaging for a fortnight. Before and during aspiration of the joints all due antiseptic precautions were taken so that accidental contamination of the fluid was rendered practically impossible.

Remarks by Mr. POWELL.—The above two examples of septic arthritis of the knee-joint successfully treated by aspiration are of interest both from a surgical and bacteriological standpoint. In both cases the form of staphylococcus was recognised by its cultural and microscopical appearances. The bacillus subtilis was also identified by subsequent cultivations in broth and gelatin, both stab and surface growth. Films prepared from these showed the characteristic form and spore formation of this organism. Hewlett[1] states that the staphylococcus pyogenes albus is less pathogenic than aureus. On the other hand, Cheyne states that in his experience the contrary is the case. However this may be, the mere fact of the occurrence of either of these organisms in a joint and its subsequent complete recovery with no more radical operation than simple withdrawal of the fluid renders these cases interesting, especially from the fact that infection of other serous membranes with staphylococci, such as the peritoneum and pleura, do not, as a rule, follow the same favourable course. The bacillus subtilis found in the second case was probably introduced into the joint at the time of injury as it is known to occur in soil, hay, straw, &c. So far as is known this organism is non-pathogenic and it took no active part in the septic process.

For the bacteriological investigations connected with the cases I am indebted to Dr. Sydney W. Curl, pathologist to the hospital, and for permission to publish the cases to Mr. Drew and Mr. Lockhart Mummery.

MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY.

A CASE OF PNEUMOCOCCAL PERITONITIS.

(Under the care of Mr. J. HOWSON RAY.)

For the notes of the case we are indebted to Dr. Charles Mackay, senior resident medical officer.

The patient, a male, aged three years, was admitted into the Children's Hospital, Pendlebury, suffering from abdominal pain, swelling, emaciation, and a discharging sinus in the abdominal wall. The family history revealed nothing of importance and the patient was stated to have been a healthy child up to the commencement of the present illness. The patient's mother supplied the following particulars. "The boy began to be unwell five weeks ago, complaining of pain in the belly and seemed very ill. His medical adviser said that he had pneumonia and left empyema (no operation being performed for the latter). Four weeks from the onset of sickness the belly had become very swollen and a hole appeared in it through which two quarts of matter came out. He has a troublesome cough and diarrhœa. The abscess is still running." The notes of the child's condition on admission were as follows. The patient was an anæmic, emaciated child with a sinus at the umbilicus. This sinus was discharging odourless, viscid greenish pus. The abdomen did not move on respiration and there were tenderness and dulness in the hypogastric, left iliac, and lumbar regions. An operation was performed by Mr. Ray two days after admission. Chloroform being administered a probe was passed into the sinus which led into the peritoneal cavity. The opening was then enlarged and much pus—having the same characters as that issuing from the sinus—was evacuated. There was some matting of the intestines and the small bowel had formed adhesions so as to limit the abscess cavity. The latter was well irrigated with normal saline solution. Two rubber drainage-tubes were fixed into the wound and dry dressings were applied. During the next month the amount of discharge became much less and gradually ceased until the sinus healed. The child's condition improved very rapidly and he left the hospital apparently quite well within seven weeks from the date of admission. Ten months later he was seen to be in excellent condition and he still continues in good health.

A microscopical examination of the pus which was obtained from the abdominal cavity was made, the films being stained in the following ways:—1. Methylene blue; micrococci were seen in great numbers arranged in groups and a few in short chains; very few bacilli were present. 2. Carbol-thionin gave a result similar to No. 1. 3. Gram's staining showed a number of cocci arranged in twos. 4. By Ziehl-Neelsen staining some chains of fine bacilli were seen; some of these slender bacilli were curved and others showed segmentation. 5. Muir's capsule stain exhibited numerous diplococci with a well-stained capsule showing up distinctly; also a few streptococci and staphylococci were seen and some stout bacilli were present. The following conclusions were drawn from the above: That pneumococci (Fraenkel's) were present together with a few degenerating tubercle bacilli, and also staphylococci and streptococci (probably albus and citreus).

[1] Manual of Pathology (second edition).

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

A Criticism of the Operation of Vasectomy and Castration in the Treatment of Enlarged Prostate.—Some Cases of Toxæmic Jaundice and Interstitial Hepatitis.—Karyokinetic Figures in Papilliferous Ovarian Cysts.—Cystic Kidney.

A MEETING of this society was held on Oct. 18th, Mr. RICKMAN J. GODLEE, the President, being in the chair.

Mr. CUTHBERT S. WALLACE gave an account of some experiments performed on animals demonstrating the effects produced by ligature of the vas and removal of the testis. He said the experiments proved that the growth of the testis was independent of the integrity of the vas: that spermatogenesis was independent of the integrity of the vas; that the development, growth, and nutrition of the prostate were dependent on the presence of the testes and independent of the integrity of the excretory ducts of those organs; that in addition the presence of one testis, even if the excretory ducts had been divided, was sufficient for the perfect growth and nutrition of the prostate: that castration in youth produced an atrophy of the prostate; and that castration in adult life also produced an atrophy of the prostate, and such an atrophy took some time to become established; and that castration, although it produced an atrophy of the normal prostate in the course of time, was not to be depended on to produce atrophy of the enlarged organ. The practical application to be derived from the foregoing conclusions was that a single or double vasectomy was useless as a means of treating prostatic hypertrophy;

that since castration could not be relied on to produce an atrophy of the enlarged prostate it should be abandoned as a means of treating such disease; and that treatment of the enlarged prostate must in future consist of either some form of prostatectomy as a radical or cleanly catherisation as a palliative measure.—Mr. S. G. SHATTOCK said that the statement made by Mr. Reginald Harrison that ligature of the vas produced atrophy of the testis had been shown to be an error. He showed specimens of a sheep in which the vasa had been tied and in which Cowper's glands attained their full development. In sheep which were castrated Cowper's glands were found to be atrophied. If only one testis was removed Cowper's glands remained normal. It was the ligature of the vessels which caused the atrophy of the testes.—The PRESIDENT referred to a patient with extensive tuberculous disease of the testes in whom one testicle was removed while the other was scraped so that but little testicular substance remained. In this case the prostate had become much smaller. He referred to the practice advocated by Sir William Bennett: that in dealing with a varicocele it was advisable to tie both the arteries and veins, as if this were done there was less likelihood of producing atrophy of the testes. He asked if there was any experimental evidence which bore out this statement.—Mr. WALLACE, in reply, stated that it had been shown that in a dog there was less likelihood of producing atrophy when both veins and artery were ligatured than when veins alone were tied.

Dr. J. F. H. BROADBENT read a paper on some cases of Toxæmic Jaundice and Interstitial Hepatitis. The first of these was that of a girl, aged 17 years, who was admitted to St. Mary's Hospital, under Dr. D. B. Lees, with a history of jaundice of sudden onset associated with pyrexia. The disease proved fatal in five weeks from the onset, terminating with delirium and coma. At the necropsy the liver was found to be small and shrunken. On section it was deeply bile-stained and showed red hæmorrhagic, alternating with pale yellow fatty, areas. Microscopically it showed extreme disintegration and acute fatty degeneration of the liver cells, most marked in the centre of the lobule in the zone of the portal vein capillaries. He classified the case as one of "toxæmic" jaundice and pointed out its analogies to acute yellow atrophy of the liver. He stated that there was no obstruction in the bile-ducts, so that the jaundice appeared to be independent of obstruction, a condition for which various explanations, such as suppression of liver function, paralysis or spasm of the bile-ducts from nervous influences, and so on, had been offered. He pointed out that the pyrexia and severe constitutional symptoms, together with the extreme destruction of the liver cells and the distribution of the lesion, suggested some acute toxic infection of the liver conveyed by the portal vein from the intestines. He referred to the explanation given by Dr. William Hunter of the jaundice in this class of cases, that it might be due to a catarrh of the smaller bile-ducts set up by toxins absorbed from the portal vein and excreted in the bile. He then described four cases of diffuse interstitial fibrosis of the liver in which the final stage, clinically, was characterised by the abrupt onset and severe nature of the final symptoms, jaundice, pyrexia, and delirium terminating in coma. Large tracts of the liver were converted into dense masses of fibrous tissue in which islands of liver cells in various stages of fatty degeneration were imbedded. In one case the whole of the left lobe of the liver was converted into fibrous tissue. He then proceeded to discuss the etiology which was obscure. There was no history of alcohol or syphilis. Two of the patients were children. He stated that the condition pointed to a toxæmia the stress of which fell primarily on the liver. He referred first of all to the channels through which toxins might have access to the liver—namely, the biliary canals, the hepatic artery, and the portal vein. He stated that experimental occlusion of the bile-ducts and occlusion of the bile-duct by carcinoma of the head of the pancreas did not produce generalised cirrhosis. He referred to the possibility of infection through the bile when a gall-stone was lodged in the common bile-duct and stated that in two instances of this he had grown cultures of bacillus coli from the bile but the patient had died from acute suppurative cholangitis. He thought that in similar cases with a less virulent and more prolonged infection true biliary cirrhosis might result, but in the cases under discussion there were no gall-stones and cultures from the bile were sterile. He next discussed the possibility of toxins due to a general toxæmia of bacterial or infective origin being conveyed to the liver by the hepatic artery and setting up cellular proliferation in the portal canals. He referred to the experiments of Claude who, by the inoculation of the toxins of bacillus coli and of diphtheria and of streptococcus and staphylococcus pyogenes and pyocyaneus into various animals, had produced a certain degree of cirrhosis in the portal canals. He also referred to Hektoen's experiments of a similar nature with bacillus coli and those of Flexner with ricin. He pointed out that toxins present in the hepatic artery must necessarily be present in the portal vein which might contain toxins absorbed from the intestines. He thought it probable that many cases of cirrhosis of the liver of obscure etiology might be due to cicatrisation of the liver after recovery from a severe general toxæmia of bacterial origin in which extensive destruction of the liver cells had occurred, and he showed specimens illustrating the extensive damage to the liver that might occur in acute pericarditis, malignant endocarditis, and pneumonia. He thought that in the event of recovery in such cases the cicatrisation of the liver might produce a condition of liver analogous to some of the cases under discussion. He referred also to the possibility of toxins of less virulence present in the hepatic artery setting up proliferation of the adjoining connective-tissue cells and producing a true monolobular cirrhosis. The paper concluded by references to researches by Klein, Palmer, Howard, and other observers who had investigated similar conditions.—Dr. F. PARKES WEBER said that there was evidence to show that cases of acute atrophy and inflammatory conditions of the liver might in the later stages pass on to cirrhosis.—Dr. F. J. POYNTON referred to the suggestion that had been made that the changes in the liver were due to various organisms and their toxins. He said that he had never found the organism of infective endocarditis in the liver or the gall-bladder and he considered that rheumatism and endocarditis were very infrequent causes of fibrosis of the liver. It was well known that scarlet fever might be a cause of cirrhosis of the liver and considering the close relationship between scarlet fever and rheumatism it was curious to find that the rheumatic poison so seldom produced that effect.

Dr. W. F. V. BONNEY exhibited slides showing Heterotype Mitosis in the Epithelial Cells covering the papillæ in certain papilliferous ovarian cysts. Since the publication of the work by Professor J. B. Farmer, Mr. C. E. Walker and Mr. J. E. S. Moore, which established the fact that the heterotype form of mitosis (occurring normally in developing egg or sperm cells) was of constant occurrence in the cells of malignant new growths, he had specially investigated the question of their occurrence in the cells of ovarian papilliferous cysts. He pointed out that these cysts occupied an extremely important place in the pathology of malignant new growths because in them all degrees of malignancy down to practical innocency were to be met with. The majority of these growths were usually held to be semi-malignant—that is to say, that local recurrence was very commonly met with whilst general blood dissemination was very rare. In many of these cysts, even when rupture had occurred and secondary epithelial grafts were present in large numbers on the peritoneum, removal of the primary growths established a cure, the secondary growths disappearing spontaneously. Here, then, was a unique field in which to test the statement that heterotype mitosis was characteristic of the cells of malignant neoplasms. He had examined six of these cysts. In four the cyst undoubtedly was paroöphoronic in origin; in the other two it was oöphoronic. His observations in the main supported the views of Professor Farmer, Mr. Walker, and Mr. Moore. The four paroöphoronic cysts were characterised by an exuberant epithelium many layers deep and of spheroidal form as regarded the cells forming it. All had grown with rapidity. Heterotype mitosis was plentifully observed in sections of these tumours. The two oöphoronic cysts clinically did not present the appearance of malignancy. Microscopically they contained a single layer of epithelial cells covering the connective tissue papillæ and from their general appearance would not have been held to be malignant. Cytologically they exhibited mitosis sparsely and those mitoses were of the somatic type. He pointed out, however, that heterotype mitosis was in all probability only a feature of malignancy and not a cause of it because these growths could not be held to have attained the same degree of malignancy as was exhibited by an ordinary carcinoma of the breast

and yet in the number of heterotype mitoses seen in sections taken from the two growths the cyst far exceeded the mammary growth. Moreover, there were large areas of growth in these cysts which exhibited somatic mitosis alone and yet all the cells manifested an equally malignant character. It was a curious fact that mitosis was not observed in the connective tissue stroma of these growths. It was perhaps premature to make the suggestion but his observations up to the present time led him to believe that indirect division was chiefly characteristic of new growths in which the growth stimulus was in all probability some obscure nutritive change, whilst direct division was characteristic of inflammatory tumours where the stimulus was of a grosser and more simple nature. This would account for the absence of mitosis in the stroma of new growths.

Dr. F. W. PRICE read an account of a large Cystic Kidney. He said that the specimen was taken from a man, about 60 years of age, who died suddenly in the street, the cause of death being fatty degeneration of the myocardium. The only history which could be obtained was that the patient, who was an American, was in the habit of passing through London every year on his way to one of the continental watering-places and that he suffered from some heart affection. Both kidneys together weighed 12 pounds 8 ounces and the weight of the specimen shown was 6 pounds 3 ounces. The organ was enormously increased in size. The greatest measurements were 10¼ inches by 6¾ inches. With the exception of a small portion near the hilum and another at the lower border the whole organ was converted into a large number of conglomerated cysts varying in size from that of a pin's head to that of a large orange. Those forming the great bulk of the organ were above the size of a hen's egg. They formed rounded prominences on the surface, most of them being non-translucent, and on section scarcely any traces of kidney substance could be seen between the cysts. The cysts were for the most part distinct and separated from one another, nor did they communicate with the pelvis. The cortical and medullary portions of the organ were alike affected and the distinction between them was lost. The pelvis of the kidney was filled with fatty tissue. The cysts were filled with fluid. In some of them it was straw-coloured, in others amber, and in others moderately blood stained. The fluid was mostly turbid. The walls of the great majority of the cysts were extremely thin and on microscopic examination were seen to consist of connective tissue; scarcely any epithelial lining was discoverable. The remains of the kidney substance showed a considerable amount of fibrosis with thickening of the vessels and the epithelium of the tubules and corpuscles of Malpighi was very degenerate. The other kidney was in a condition almost exactly like the specimen and weighed 6 pounds 5 ounces. There was no cystic condition of the liver. The mucous membrane of the bladder was slightly thickened. The ureters and prostate were normal.

CLINICAL SOCIETY OF LONDON.

Presidential Address.—Infantile Paralysis cured by Nerve Grafting.—The Surgery of Cases of Inflammation of the Liver.

A MEETING of this society was held on Oct. 14th, Dr. FREDERICK TAYLOR, the President, being in the chair.

The PRESIDENT delivered his opening address. After expressing his appreciation of the honour conferred upon him by his election, he reviewed the work of the society during recent years as judged by the number of its members, the frequency of their attendances, and the number and character of the papers read. The members now numbered 599, an increase of nearly 60 per cent. in the last 20 years. The attendances maintained a uniform rate and were unaffected by the formation of several new societies both in the centre or in the suburbs of London. The most popular evenings were those upon which clinical cases were exhibited, when the number of members and visitors present often reached 100. He had looked closely into the subjects of the papers during the last ten years with the object of ascertaining to what extent the subject of treatment apart from surgery engaged the attention of the society. It appeared, as might be expected, that surgical papers were slightly more numerous than medical papers, and that while three-fourths of the surgical papers dealt with treatment only one-fourth of the medical papers dealt primarily with therapeutics. Admitting the great improvements in the treatment of cases regarded as purely medical, as shown by the treatment of phthisis, by the use of many new chemical compounds, by opotherapy, by serum therapy, and by the use of baths and light, and electricity, he thought that there was still very much to be desired in the direct treatment of diseases other than by prevention or by surgical methods. In spite of the great increase of our knowledge of the bacteriology of the general infectious diseases our methods of direct treatment were as yet applicable to very few, while the direct medical influence upon inflammatory processes in internal organs was rarely obtained, the disease running its course modified only by the resisting powers of the body, by which indirect means alone often could the physician help the patient. He instanced the medical treatment of nephritis, which so far as the pathological lesion itself was concerned had remained stationary for years, though much attention had been directed to the treatment and alleviation or prevention of the effects of these lesions on other structures and functions. Degenerative processes were still more difficult to deal with, and with regard to tumours the establishment of the Cancer Research Fund was a recognition that prevention was all-important in the matter of new growths. He suggested to the members of the society that information and cases bearing upon the direct medical treatment of diseases would form valuable material for the society and mentioned forms of treatment already well known upon which papers might perhaps be usefully introduced. Alluding again to the meetings for the exhibition of clinical cases he suggested that some improvements were possible in the management of the latter half of each such meeting, and concluded with a reference to the successful visit to London of French physicians and surgeons and the good influence it should have on the progress of clinical medicine.

Dr. WILFRED J. HARRIS and Mr. V. WARREN LOW contributed a paper entitled "The Cure of Infantile Paralysis of the Shoulder by Nerve-grafting," and exhibited a case in illustration. The patient was a female child, aged 20 months, who had incurred a typical attack of infantile paralysis which resulted in complete paralysis of the right deltoid and the supra- and infra-spinatus muscles, with wasting and well-marked reaction of degeneration. Four months later, there being no sign of recovery in spite of massage and galvanism, an operation was performed on the upper nerve trunks of the brachial plexus. In July, 1903, the fifth cervical nerve was split longitudinally; its upper half, containing the majority of the motor fibres for the suprascapular and circumflex nerves, was then cut across and its distal end turned down in front of the uncut portion of the fifth cervical nerve and sutured into a nick made in the sixth nerve. At the present time, 15 months after the operation, there was considerable recovery of power, the child being able to raise her arm above the head and to hold it straight out. The first signs of recovery of power had been noticed six months after the operation. Variations in the size and distribution of the fifth cervical nerve were very considerable and it was necessary to test this nerve trunk carefully at the time of operation. Reference was made to previous contributions by Dr. Harris and Mr. Low on the subject.[1]—Mr. A. A. BOWLBY remarked on the rapid repair of motor nerves which took place in childhood. The case before the society was a good illustration of this and he congratulated Dr. Harris and Mr. Low on their success.—Mr. C. H. FAGGE congratulated Dr. Harris on his researches into the true structure of the brachial plexus, researches which had led to his adopting this method of treatment. There were, however, two questions which he would like to ask—What amount of recovery would have taken place in the paralysed muscles without operation? and at how late a period in such a case would operation be likely to do good?—Dr. E. FARQUHAR BUZZARD believed that in the case before the society all the fibres of the deltoid had not recovered equally and thought it must be very difficult to exclude all the deltoid nerve-supply when dividing the nerve trunk.—Mr. LOW described the details necessary to prevent diffusion of the testing electric current at the time of operation and exhibited the terminal which he had devised to prevent sepsis.—Dr. HARRIS replied, explaining why such favourable results could not be obtained by other less active means of treatment.

Mr. W. G. SPENCER read a paper on the Surgery of Cases of Inflammation in and around the Liver. A resort to

[1] Brit. Med. Jour., Oct. 24th, 1903, and Journal of Anatomy and Physiology, July, 1904.

surgical exploration allowed of a direct examination at a much earlier stage of the disease than that reached when the examination was made after death from it. It was from this latter that knowledge had hitherto been drawn, when affections having widely different origins came to resemble one another in a common ending. An early surgical exploration of such cases as those about to be described was the more worthy of favourable consideration seeing that relief and arrest of the inflammatory process tended to follow. But in a general way the operation appeared to bring about a restoration of the equilibrium which normally existed between exudation and absorption and which in the affected region had been disturbed. The first case was one of enlargement of the liver simulating hydatids which subsided after incision. The second case was one of enlargement of the liver complicated by jaundice, acute fever, and rigors, relieved by drainage of the gall-bladder. The third was a case of chronic peritonitis around the spleen and liver with ascites and anæmia, under the care of Dr. W. Murrell.[2] The fourth was a case of peritonitis around the liver with ascites commencing after puerperal fever. Mr. Spencer had in a previous paper referred to four cases of syphilitic disease of the liver benefited by surgical operation.[3] The influence of syphilis and alcohol could be excluded in the four cases now described; none of them showed biliary disease; none had suffered from malaria, dysentery, typhoid fever, or pyæmia. Of the four cases detailed, in the first the disease seemed to have been started by a chill over the liver, the second by septic absorption following gastric ulceration, the third by some influenzal or perhaps pneumococcal infection by way of the lungs, and the fourth by some mild septic absorption from the puerperal uterus. But although of different origin yet the effect was an inflammation either in the liver, causing rapid enlargement, or around the liver in the peritoneum, causing exudation. It followed that cases should not hastily be labelled "cirrhosis and ascites" without giving the causation further consideration. Surgical exploration and the establishment of the venous anastomosis connected with the names of Talma and Morrison gave renewed vigour and interest to the attempts to differentiate cases hitherto included under the same name.

OBSTETRICAL SOCIETY OF LONDON.

Cæsarean Section in Cases of Contracted Pelvis.

A MEETING of this society was held on Oct. 5th, Dr. EDWARD MALINS, the President, being in the chair.

Dr. J. M. MUNRO KERR (Glasgow) read a paper entitled "Certain Details regarding the Operation of Cæsarean Section in Cases of Contracted Pelvis, based upon a Series of 30 Cases." He considered first the maternal mortality which, in his own cases, with two deaths, came to 6·6 per cent. In one of the fatal cases the patient died on the fifth day, the post-mortem examination revealing the existence of septic peritonitis. In the other the patient died from collapse the day after operation. At the post-mortem examination a large quantity of blood was present in the abdominal cavity and two or three of the uterine stitches were found untied. The three different methods of treating the uterus after removing the child were next discussed—namely, (1) removal of the uterus by supravaginal hysterectomy; (2) retention of the uterus and sterilisation by resection of the tubes; and (3) retention of the uterus without sterilisation—the conservative Cæsarean section. From the statistics of himself and others he came to the conclusion that the best results were obtained by supravaginal hysterectomy; there was little time for preparing patients for operation. The arguments for and against the conservative operation were then considered from various points of view.

Dr. G. E. HERMAN said that Cæsarean section when performed early was the simplest and easiest of all abdominal operations because the parts concerned were healthy and normal and it therefore ought to have no mortality at all. If postponed until the patient had been exhausted by protracted labour it was no longer a safe operation. He considered that it was for the patient to decide whether she would be sterilised or not and that the way to do it was to remove the uterus.

Dr. W. S. A. GRIFFITH said that as regards sterilisation of the patient he had invariably done it by ligature of the tubes with fine silk.

Dr. AMAND J. M. ROUTH said that with respect to the choice of operation cases should be divided into two classes—namely, (1) those in which the chance of another child was desired and (2) those in which it was decided to prevent further conception. In the first class the risks should be placed fully before those interested and if they still desired it a conservative Cæsarean section should be performed. Such risks were briefly: secondary hæmorrhage and sepsis after the primary operation, yielding of the cicatrix and rupture during the next pregnancy, an 8 per cent. mortality in repeated Cæsarean section, and the possibility of a disadvantageous environment when next at full term. If sterilisation were decided upon he held that removal of the ovaries was not advisable owing to the proved value of their internal secretion, that resection of the tubes did not always cause sterility, and that hysterectomy presented the advantages of a smaller mortality, the ease of the operation, the lessened risk of secondary hæmorrhage and sepsis, and the certainty of sterilisation.

Dr. HERBERT R. SPENCER said that he had performed Cæsarean section six times for contracted pelvis and twice for obstruction by scars; the patients all recovered. He had also performed the operation four times for tumours, one of the patients afterwards dying from kidney disease. He held the opinion that the question of sterilisation should be decided entirely by the medical attendant whose duty was to deliver the woman and to restore her as nearly as possible to a natural condition. If the patient became pregnant again the responsibility was not the medical attendant's whose duty was to repeat the Cæsarean section which experience showed to be very safe.

Dr. C. J. CULLINGWORTH said that he had altered his opinion on the ethics of sterilisation and was now in agreement with Dr. Spencer on the subject. A woman possessing one living child might consent or even ask to be sterilised rather than have again to face a serious operation, but supposing her one child died she might deeply regret having submitted to sterilisation. Besides, a patient's husband might die and the fact of her incapacity to bear a child might stand in the way of a second marriage. It had been shown that there was little, if any, more risk in a second or third Cæsarean operation.

Various specimens of tumours were shown by Dr. HERBERT WILLIAMSON, Dr. C. H. J. LOCKYER, and Dr. M. HANDFIELD-JONES.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The opening meeting of the twenty-third session of this society was held at the West London Hospital on Oct. 7th, Mr. Charles M. Tuke, the President, being in the chair.—The President, who delivered an address on Psychology, chose for the subject-matter the special work to which he has devoted his life. He referred to the able address of the late President, in which the enormous advance made in medical knowledge during the last 50 years was dealt with. But striking and real as that advance undoubtedly was, it might be asked if the treatment of insanity had also advanced during that time. He replied that progress had been made in that branch of medical science almost as great as in any other direction—an advance not perhaps marked by any one great discovery but chiefly by the general adoption of a principle which had been of enormous value to thousands and had conferred honour on those who initiated it and also on the whole profession of medicine. This system—the non-restraint system—was now universal but in considering the advances of medical science its first recognition must mark an epoch and it was almost impossible to believe that its general adoption dated from only some 60 years ago. By very interesting references to ancient history and quotations from Plato, Euripides, Hippocrates, Cœlius, and Galen he compared the treatment of insanity among the ancients with more modern methods and drew attention to the surprising fact that it was not possible to trace a gradual improvement in the history of the treatment of insanity—the same story of deplorable ignorance, neglect, cruelty, and even imprisonment in chains and burning, obtaining almost universally until the close of the eighteenth century. It was not until 1792 that the name of Pinel recalled a noble change in the whole system, 53 patients being liberated from chains by him in that year at Bicêtre and the non-restraint system being inaugurated in France. In England

[2] THE LANCET, June 16th, 1900, p. 1775.
[3] Transactions of the Clinical Society of London, 1899, vol. xxxii., p. 46.

in the same year William Tuke founded an institution in York called "The Retreat," which was conducted on lines almost identical with the non-restraint system, and it was to William Tuke and his grandson Samuel Tuke that so much of the credit was due in obtaining the appointment of a committee of the House of Commons in 1815 to inquire into the condition and management of asylums. From that time dated the disappearance of ignorance and cruelty and the rise of a high standard of moral management, also the building of new asylums superintended by men of intelligence, sympathy, and humanity. Lincoln Asylum (under Mr. Gardner Hill and Dr. Charlesworth) and on a larger scale Hanwell Asylum (under Dr. Conolly) were very conspicuous examples of the new treatment. In dealing with the laws regarding the insane the President emphasised the strides made in the right direction by the Vagrant Act in 1744 and also the noble work done by Lord Ashley (afterwards Lord Shaftesbury), through whose efforts the Commissioners in Lunacy were appointed. In the fifty-eighth report of the Commissioners the number of persons certified as insane in England and Wales on Jan. 1st, 1904, was 117 199, a return which showed a slight annual increase at a greater rate than the growth of the population. But this increase was more apparent than real; it was almost wholly among the pauper patients and could perhaps be accounted for by the fact that cases were now more readily recognised and certified than formerly, and also because with the improved sanitation and medical treatment acute cases were accumulating in asylums. The provisions of the law regarding both "Chancery patients" and the "voluntary boarder" were clearly explained and the lunacy law was shown to be very ample both for the patient and his property. The President gave valuable and practical advice as to the treatment of the so-called "nerve cases" and spoke in the highest praise of borough and county asylums—their one fault, if any, being that they had become too huge. Could the medical superintendent, however skilful and able, keep in medical touch with, and give individual attention to, 2000 cases, or even 1,500? After dealing with the causes and classifications of insanity the President concluded a very interesting and able address by strongly advocating the need of public education, for, great strides as the science of psychology had made, still further progress and more successful results would follow when the public were educated to realise fully that temperance, sobriety, and chastity were the essentials of Christian civilised communities.

DERMATOLOGICAL SOCIETY OF LONDON.—An ordinary meeting of this society was held on Oct. 12th, Dr. J. J. Pringle being in the chair. At this meeting the French physicians and surgeons visiting London were specially invited to be present and Dr. Pringle, in opening the meeting, offered them the heartiest welcome on the part of the society and invited them to join in all discussion and to consider themselves generally as members of the society for the evening. The following are the names of the French visitors who availed themselves of the invitation: Professor Hallopeau, Dr. Angibaud, Dr. Barrié, Dr. Gastou, Dr. Jacquet, Dr. Pautrier, and Dr. Simon.—Dr. H. Radcliffe-Crocker showed a patient who had suffered from Lupus Erythematosus of both sides of the face for some years and who had been treated by means of the x rays and high-frequency current with a high vacuum electrode. This treatment was not carried out under Dr. Radcliffe-Crocker's instructions and the case was shown to bring out the fact that severe "burns" could be caused by the high-frequency apparatus, though it was considered by most people to be free from risk. The side of the face that had been treated by the x rays had never reacted but a great deal of inflammation had been produced on the other side which had been exposed to the high-frequency current.—Dr. Radcliffe-Crocker also showed with Mr. G. Pernet (1) a woman, aged 45 years, suffering from Leprosy; (2) a man, aged 28 years, suffering from Mycosis Fungoides; (3) a man, aged 21 years, suffering from Symmetrical Xanthoma Tuberosum; (4) a man, aged 32 years, who was covered over the trunk and limbs with circular, tawny patches which were slightly infiltrated (the disease was familiar to many of the members but was of unknown nature); and (5) a female, aged 24 years, suffering from Mixed Sclerodermia.—Mr. W. Hartigan showed a girl who had been born with a Large "Port Wine" Nævus covering the Left Cheek and the Left Side of the Nose. The area had been treated for nine months with radium, during which time 39 exposures, varying in duration from half an hour to one hour, had been given. There resulted from this the production of numerous pale areas of atrophic scarring and the case was considered distinctly encouraging.—Dr. J. Galloway showed a man who had been suffering from Lichen Planus of the Arms and Mucous Membranes of the Mouth for a year, the special point of interest being that although the main part of the eruption had faded there was an extremely minute rash left, consisting of tiny follicular papules. The patient had had no active treatment.—Dr. A. Whitfield showed a youth, aged 18 years, who had gone to the hospital complaining of Swollen Glands in his Neck. One of these was suppurating and was opened but the history showed that he had suffered from chronic adenitis for years and that it was probably tuberculous. He also had a widespread infiltrated follicular rash on the limbs and abdomen and it was discovered that he had had gonorrhœa about eight months before and there was a scar suggestive of a hard chancre on the glans penis. The glands in the groin on one side were large and hard and the throat was typical of the secondary stage of syphilis. Dr. Whitfield pointed out that the rash would pass for either lichen scrofulosorum or the lichenoid syphilide, and the patient had apparently both tuberculosis and syphilis. He reminded the members of a similar case shown by Dr. Pringle and said that this was now the fourth case he had seen in which recent operation on tuberculous glands in a syphilitic patient caused difficulty in assigning the true cause to the eruption. He considered this case to be syphilitic.—Professor Hallopeau said that he considered the case to be one of great interest and he thought that a positive differential diagnosis could not be made without watching the patient.—At the end of the meeting Professor Hallopeau expressed in a graceful speech the thanks of the guests for the interesting afternoon which had been afforded them.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Oct. 7th, Dr. Leslie Durno, the retiring President, being in the chair.—After his induction to the chair, Dr. J. S. Risien Russell delivered his presidential address, in which he discussed some of the important bearings of prophylactic measures in treatment. He said that although the time was far distant when it would be possible to dispense with the services of medical men for the treatment of disease, great advances had been made in prophylaxis of which no better example was afforded than by our present position in regard to the infective fevers. What was true of them was also evident in every branch of medicine, including that to which he had devoted more special attention. A large number of diseases of the nervous system were now ascribed to the influence of toxic agents and many of these affections were, therefore, preventable if proper prophylactic measures were adopted and the truth of this statement was supported by illustrative examples. He next showed how this was only in part true as regards syphilis, for whereas gumma, meningitis, and endarteritis could be prevented by proper antisyphilitic treatment it was otherwise with regard to diseases like general paralysis of the insane and tabes dorsalis which often developed in those who had been treated thoroughly by mercury and iodide of potassium. Many of the conditions in which prophylactic measures were of use were too well known to his audience to require emphasis, but he desired to bring to notice some that did not command the attention which they deserved. He insisted on the necessity for more prolonged rest in the recumbent posture than was usually secured for patients suffering from acute rheumatism in view of the possibility of endocarditis unrevealed by physical signs, for strain put too soon on valves softened by inflammation was likely to lead to ill effects that might well be avoided by more prolonged rest. The importance of exercising care in the selection of the dwellings of patients sent from home or hospital to convalesce after an attack of endocarditis was also emphasised, as insanitary conditions might readily transform a simple endocarditis into the malignant variety. The importance of not allowing a discharge from the ear to go untreated was well recognised and yet how many cases were still neglected until such serious consequences as septic meningitis or intracranial abscess resulted. The necessity of paying attention to the teeth and gums had scarcely been sufficiently impressed on the minds of members of the profession, in illustration of which cases were quoted in which grave consequences followed from the neglect of septic conditions of the gums the result of failure to use the tooth brush. The serious consequences that might follow

habitual constipation and its neglect were next discussed and the share that mothers should take in attempts to prevent this was referred to. There were many other affections which might be averted by the intelligent coöperation of the mother, but notably was hysteria to be averted in this way. Neurotic mothers should be warned not to make complaints of their ailments before their children. Many mothers by listening to every trivial complaint from a child and by making a fuss of it engendered selfishness which sowed the seeds of hysteria which must ultimately bring much unhappiness to many a home. In considering the influence of prophylactic measures in the prevention of other diseases of the nervous system special emphasis was laid on the importance of prolonged rest during convalescence from acute specific fevers when there had been any symptoms indicating disturbance of the nervous system. Many diseases obscure in origin like disseminated sclerosis might well be the outcome of the effects of toxic agents acting on the nerve elements. The need for more rest after the infective fevers was also important with a view to prevent neurasthenia. The same was true of neurasthenia which followed traumatism, for if more rest could be secured after accidents with shocks to the nervous system much of the traumatic variety of neurasthenia might be averted.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on Oct. 13th, Professor John W. Taylor, the President, being in the chair.—Specimens were shown by Dr. Bedford Fenwick and Dr. F. Edge.—Mrs. M. A. D. Scharlieb mentioned a case of Recurrence and Death about Six Months after the Removal of Bilateral Ovarian Malignant Growths.—Mr. J. Furneaux Jordan showed (1) a Cystoma of the Left Ovary removed by the vaginal way from a pregnant woman without interfering with the pregnancy, and (2) a Double Tuberculous Pyosalpinx.—Dr. William Duncan said that ovarian tumours complicating pregnancy should be removed at whatever time they were detected but insisted in the superior advantage of operating from the abdomen.—The President said that ovarian fluctuating cysts in pregnant women, which were not dermoids, were hardly ever adherent, and especially in that they blocked the pelvis below the pregnancy were much more satisfactorily dealt with by the vagina.—Dr. Duncan showed a Uterus with Cancer of the Body which, owing to the narrowness of the vagina, the extreme obesity of the patient, and to satisfactory elevation of the pelvis not being obtainable, he had removed by a combined abdominal and vaginal operation.—Mr. F. Bowreman Jessett and Dr. F. A. Purcell pointed out the great help to be obtained in such cases by deep paravaginal incisions known now as Schuchardt's incisions, but which they claimed they had developed independently at the Cancer Hospital.—Mr. Christopher Martin read a paper on the Treatment of Intractable Prolapse by Extirpation of the Uterus and Vagina. He described the technique of his operation[1] and mentioned the similar operation independently devised by Edebohls of New York and gave details of the four cases in which he had now performed the operation with excellent results. He did not recommend his method except in cases in which the patient's discomfort was extreme and after other and milder measures had been tried in vain, for the operation was long, tedious and bloody, was attended with considerable shock, and was not free from danger of accidentally wounding the ureters, bladder, or rectum; moreover, convalescence was slow and in all his cases had been complicated by deeply seated suppuration. The ultimate results, however, were very satisfactory, and in future he hoped that he might be able to avoid such suppuration, which he considered the chief drawback to his method, by greater care in the disinfection of the field of operation and the arrest of hæmorrhage, by the use of drainage-tubes, and by perfectly sterile, absorbable sutures. The discussion of the paper was postponed.

FIFESHIRE MEDICAL ASSOCIATION.—The twenty-third annual general meeting of this association took place in St. Andrews on Oct. 7th, Professor J. Musgrove, St. Andrews, the President, being in the chair.—The minutes of the last meeting having been read and approved Professor Musgrove delivered his presidential address on the Topographical Anatomy of the Thorax and Abdomen. This was illustrated by means of a fine series of models the work of the late Professor His of Leipsic, to whose memory the President delivered a graceful panegyric. The models were taken from the cadaver of a youth, 15 years of age, prepared by the injection of a solution of chromic acid, a method which was adopted by Professor His in 1878 and which yet compared favourably with the more modern method of formalin injection. Many points of great practical value—the difference in level of the lung apices, the position of the heart, the oblique position of the spleen, the difference in height of the kidneys, and others—were shown.—Professor D. F. Harris then made a communication on a copy of the "Manual of Anatomy," by Alexander Read, a contemporary of Harvey. This very interesting volume was printed in 1638 in duodecimo and had on it the initials C. R., being in all probability a presentation volume from the author to King Charles I., who it was known took much interest in science and who was a friend and patient of Harvey. The point of historical interest in the book lay in the fact that, although printed some years after Harvey's discovery had been made public, it still contained the ancient Galenical ideas concerning the blood.—The President thanked Professor Harris, in the name of the association, for his interesting communication.—Dr. J. Macdonald, the honorary treasurer, then exhibited his annual statement of the finances of the association, which showed a balance in hand of £13 16*s.* 8*d.*, being exactly the same as last year, which was considered very satisfactory.—The election of office-bearers was then proceeded with and the following were elected for the ensuing year:—President: Dr. A. J. Macgregor. Vice-President: Dr. Norman Walker. Council: Dr. J. Orr, Dr. D. E. Dickson, and Dr. W. H. Mackenzie. Honorary treasurer: Dr. Macdonald. Honorary secretary: Dr. C. E. Douglas. Dr. Macdonald then proposed a motion of which notice had been given at the last dinner—namely, that next year's meeting should be held in Thornton. This was seconded by Dr. R. T. Ferguson and after some discussion was unanimously agreed to.

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held on Oct. 7th, Dr. J. Rorie being in the chair.—Dr. Angus McGillivray showed a case of Relapsing Hyphæmia Oculi. The patient, a boy, was operated upon for traumatic cataract in 1901 and made a good recovery. A year afterwards blood was discovered in the anterior chamber, the supposed cause being over-exertion at football. Since then there had been several relapses of the hyphæmia.—Dr. R. C. Buist, in a paper entitled "The Doctor in Molière," gave an interesting account of the medical man as depicted in the plays. He said that Molière, being frequently in attendance at the French Court and mixing with the physicians and philosophers of the day, had every opportunity of acquiring an extensive knowledge of all that was new and means for studying the eccentricities of the leading men. Dr. Buist illustrated his paper by many humorous quotations from the plays.—Dr. Colin McVicar read notes on a series of cases of Perforative Peritonitis, associated with appendicitis, rupture of ulcer in typhoid fever, and other lesions in the lower abdomen. He said that the first sign of peritonitis could always be detected by light percussion, for an area of dulness, varying in extent according to the lesion, could always be made out. This was caused by a protective layer of fibrinous exudation over the peritoneum. This initial dulness usually took a crescentic form and extended day by day as the inflammation advanced. If pus was formed it could be detected by deep percussion along the line of Poupart's ligament; absolute dulness meant pus. If this dulness increased rapidly there was danger to the protective barrier of fibrinous lymph and immediate evacuation of pus was necessary to prevent general suppurative peritonitis. The most favourable cases for operation were those in which the pulse-rate did not rise above 120. A pulse-rate of 140 or 160 meant a fatal result, even with immediate operation. He considered that the best point at which to open the abdomen was in the right or left iliac region. By an incision in the middle line the exact site of the pus was apt to be missed.

SOUTH-WEST LONDON MEDICAL SOCIETY.—The first monthly meeting of the winter session of this society was held on Oct. 12th, Mr. E. F. White, the President, being in the chair.—Dr. F. de Havilland Hall read a paper on Errors of Diagnosis. He prefaced his remarks by impressing the importance of systematic examination. More mistakes were made from not looking than from want of knowledge. What a number of mistakes of diagnosis could have been avoided by systematically

[1] Brit. Med. Jour., Oct. 5th, 1901.

examining the urine, both for albumin and sugar. When speaking of errors of diagnosis Dr. Hall referred specially to cases in which, in spite of full consideration of the symptoms and physical signs, the after-history had shown that a mistake had been made. He read notes to illustrate the difficulty in distinguishing between acute rheumatism and pyæmia and advised that in any case of supposed rheumatic fever in which the symptoms were at all anomalous pyæmia should be borne in mind. A case of appendicitis mistaken for lead colic was quoted and also a case of plumbism mistaken for appendicitis. In no class of cases were mistakes more common than in jaundice with enlargement of the liver and Dr. Hall referred to one case in which, after a laparotomy had been performed, the erroneous diagnosis of malignant disease was adhered to. He mentioned a case of prolonged obstructive jaundice due to the presence of a gall-stone which somehow or other was dislodged after 18 months. A case of gall-stones in which the symptoms simulated angina was quoted. Dr. Hall referred to the many mistakes made in the diagnosis of pleural effusion and said that this was one of the most frequent errors in medical practice. The speaker concluded by urging that the habit of exact diagnosis should be cultivated. It was necessary not only to observe physical signs and symptoms but to ascertain on what they depended.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—The first meeting of the session of this society was held on Oct. 10th in the Faculty Hall, Professor R. Muir, the President, being in the chair.—Dr. T. K. Monro showed two cases of Muscular Atrophy of the Peroneal Type. The affection in both cases was attributed to an attack of measles but the causal relationship was somewhat doubtful as the first signs of the paralysis, which developed very gradually, were only noticed about two years afterwards. The one patient was 13 years and the other ten years old; they were brother and sister. The paralysis and wasting were now, in the one case five and in the other case seven years after the attack of measles, very marked.—Dr. A. Freeland Fergus described a New Operation for Ectropion due to Blepharitis Marginalis and showed a patient on whom the operation had been performed. The result appeared to be most satisfactory.—Dr. Fergus made some remarks on the Tests for Binocular Fixation. The various forms of stereoscope were shown and discussed. None of them quite satisfied the requirements of Dr. Fergus in respect of insuring that the three dimensions were really appreciated; he had found that the best tests were "Plastographs."—Dr. J. Walker Downie and Dr. John H. Teacher showed a specimen of Cancerous Tumour of the Thyroid Gland which had caused death by penetrating into the trachea.—Dr. Henry Rutherfurd described a case in which a Hydronephrotic Cyst, which contained seven pints of fluid, was removed through the abdomen from a boy, aged seven years. The patient made a perfect recovery.—Dr. G. H. Edington showed as card specimens: (1) a Ruptured Kidney removed by operation; and (2) an Intussusception (ileac) removed by operation.

MIDLAND MEDICAL SOCIETY.—A meeting of this society was held on Oct. 12th, Dr. R. Saundby being in the chair.—Dr. J. Douglas Stanley showed a boy, aged eight years, who was admitted under his care as suffering from Acute Rheumatism. The highest temperature recorded was 101° F. There were swelling and tenderness of both knees, which lasted an unusual time and on which salicylates seemed to have but little effect. Some days after admission there was enlargement with tenderness of the lymphatic glands in the right groin. The spleen was not felt. The patient's mother had had "rheumatism" and another child had "heart disease following rheumatism." Enlargement of the knees persisted and the joints became stiff. There was interstitial keratitis of eight months' duration. Dr. Stanley believed that the case was one of rheumatoid arthritis.—Mr. C. A. Leedham-Green showed a specimen of a large Melanotic Sarcoma which he had removed from the middle portion of the rectum of a man, aged 45 years. The growth appeared as a large, slightly indurated ulcer, nearly encircling the bowel. The patient made an excellent recovery from the operation but died a month after from secondary deposits in the brain and other organs. On microscopic examination of the rectal growth it proved to be a spindle-celled melanotic sarcoma.—Mr. Jordan Lloyd read a paper on Excision of the Tongue, partial and complete.—The following office-bearers have been elected for the ensuing year:—President: Dr. E. W. Wood White. Treasurer: Mr. J. Garner. Secretaries: Mr. L. P. Gamgee and Dr. W. Allport.

BURNLEY AND DISTRICT MEDICO-ETHICAL ASSOCIATION.—The opening meeting of this society was held on Oct. 6th when Professor D. N. Knox of St. Mungo's College, Glasgow, delivered the opening address which was mainly concerned with the position which the Glasgow Royal Infirmary held with regard to surgery. After quoting statistics obtained by the Royal Infirmary surgeons in the earlier part of last century and remarking upon their professional and personal characteristics he dealt with his personal recollections. He gave a graphic description of the state of the surgical wards when he was a student. The stench was almost unbearable, the odour of putrefying wounds made new patients and visitors sick, and even the house men after a residence of a few months had in many instances to retire in order to recuperate. The advent of Lister and Lister's earlier experiments were told from personal recollections. The antiseptic age with its results was analysed and compared with the aseptic or present time as well as with the pre-antiseptic age. Modern methods of operating were spoken of and he counselled all surgeons to make cultures frequently and to examine anything which might come in contact with a patient or an open wound. Portions of dress, bedclothes, epidermis, finger-nails, and so on, should all be bacteriologically examined for the surgeon's own education and the benefit of humanity. In conclusion, he outlined his view of the surgical future when dressings and bandages should be abolished along with the death-rate and when surgeons could forecast with almost absolute certainty the results in each case.

CHELSEA CLINICAL SOCIETY.—The opening meeting of this society for the session 1904–05 was held on Oct. 18th.—Dr. T. V. Dickinson, the President, in the course of some introductory remarks, briefly traced the history of medicine from the earliest times. He described how as a dresser he had to syringe out ounces of pus daily from amputation wounds, and his account of the hemp ligatures, which were left long and hanging out in a bunch from one corner of the wound so that they could be tugged at from time to time to see if any had separated, interested his audience. Referring to the annual clinical debate of the society which is to take place on March 14th and 21st, 1905, the President said that the subject chosen for debate was Chronic Constipation and its Medical and Surgical Treatment. He observed how often medical men were baffled by the obstinate resistance of this affection to pharmacology. They all knew too well its disdain of dietetic restrictions and its harassing recurrences at the very moment when the practitioner considered that the patient had recovered.—After the President had concluded his introductory remarks the numerous company present were entertained at a smoking concert given under the direction of the Rev. Dr. Collisson, assisted by Mr. T. Saunders, Mr. C. Ritchie, Mr. L. Ivimy, and others.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—The annual meeting of this society was held on Oct. 12th.—Mr. J. Paul Bush, the President for the past session, vacated the chair which was then occupied by his successor, Dr. Reginald Eager, who gave the inaugural address. He dealt with the difficulties and responsibilities in the certification of the insane, the advisability of early cases being treated in suitable lunatic hospitals, and the question of "borderland cases." A sketch was given of what a properly equipped hospital for the insane might be like in the future and a suggestion was made that then such cumbrous methods as certificates might be done away with.—Dr. R. Shingleton Smith proposed, and Dr. Barclay J. Baron seconded, "That the best thanks of the society be given to Dr. Eager for his able address." This was carried by acclamation and Dr. Eager having replied, the officers for the ensuing session were appointed.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on Oct. 5th, Dr. Judson S. Bury, the President, being in the chair.—Dr. Byrom Bramwell gave an address on Errors in Diagnosis. After insisting upon the importance of a full and accurate diagnosis and giving illustrations of the grave errors in prognosis and treatment which might result from a mistaken diagnosis he considered in detail the chief causes of diagnostic errors and mistakes, illustrating his remarks by some of the conditions which in

his experience most frequently gave rise to difficulties in practice. In the course of his remarks he incidentally considered the differential diagnosis of several different conditions, such as general paralysis of the insane and alcoholic insanity, and described in detail a number of interesting cases which had come under his own observation in which the diagnosis was for some reason or other attended with especial difficulty.

PLAISTOW AND CANNING TOWN MEDICAL SOCIETY.—A meeting of this society was held on Oct. 7th.—Mr. Percy Rose showed two children of one family both affected with Double Anophthalmos. The elder child, aged three years, had been exhibited by Mr. Rose at a former meeting of the society, but the birth of another child with exactly the same condition induced him to show the two cases.—Dr. L. G. Guthrie, who was present by invitation, then gave a lecture on Tabes Dorsalis with special Reference to Treatment and the Use of Frenkel's Exercises, which latter he demonstrated on a living subject. The lecture was further illustrated by three cases of tabes dorsalis exhibited by Mr. H. A. Nelson, Dr. W. C. Taylor, and Dr. E. Hay.—The meeting concluded by a hearty vote of thanks to Dr. Guthrie for his interesting and instructive lecture.

MEDICO-LEGAL SOCIETY.—The third annual general meeting of this society was held on Oct. 11th. The following officers were elected for the ensuing session: President: Sir William J. Collins. Vice-Presidents: Dr. Matthew Hay, Dr. A. Bostock Hill, Mr. C. H. Hopwood, K.C., Sir Thomas Stevenson, and Mr. Justice Walton. Treasurer: Mr. John Troutbeck. Council: Dr. G. Danford Thomas, Dr. J. G. Garson, Dr. H. Harvey Littlejohn, Dr. W. McCallin, Earl Russell, Mr. Walter Schröder, Dr. T. Claye Shaw, Dr. F. J. Smith, and Dr. W. Wynn Westcott. Secretaries: Mr. R. Henslowe Wellington and Dr. Stanley B. Atkinson.

Reviews and Notices of Books.

The Pathology of the Eye. By J. HERBERT PARSONS, B.S., D.Sc. Lond., F.R.C.S. Eng., Assistant Ophthalmic Surgeon University College Hospital; Curator and Pathologist Royal London Ophthalmic Hospital; Lecturer on Physiological Optics, University College, London. Vol. I. Histology, Part I. London: Hodder and Stoughton. 1904. 8vo. pp. 388. Price £2 net to subscribers, separate volumes 15*s.* net.

THE technique of the microscope has in the course of the last few years attained such a degree of delicacy as almost to merit the appellation of a "fine art" and there are few indeed of those who accept ophthalmic cases as part of their routine practice who have the opportunity, or if they have the opportunity have not the time, to make such a careful examination of even the simplest forms of disease that present themselves to their observation as may prove of scientific value. Let us take, for example, a tarsal tumour which has been removed entire by an external cut. In the exigencies of practice it is often forgotten until it is dry and useless for investigation, or it is placed in alcohol or a solution of potassium bichromate. Even the expert who has had time to make a satisfactory microscopical examination of any unusual form of disease finds it very convenient to have a book of reference which contains in a compact form the results obtained by the researches of others. For these reasons the treatise of Mr. Parsons is of great value. The position which he occupies as curator of the museum and pathologist at the Royal London Ophthalmic Hospital, aided by the goodwill of his colleagues, has brought under his notice an immense quantity of material that has been promptly and thoroughly examined with all those appliances and by all those means which have been recommended as proving successful in histological demonstrations. It is by the application of these means in practical hands, like those of Mr. Parsons, that correct diagnoses can be made during life and knowledge of disease obtained that will surely be followed by improvement in treatment. A good feature of the work is that in addition to the numerous reproductions of drawings illustrating pathological conditions the reader will find at the head of each section, as those devoted to the conjunctiva, the iris, the angle of the anterior chamber, and other parts, one or more illustrations presenting the normal appearances. The figures in most of the treatises on histology and physiology are often copied and are always more or less diagrammatic, but in these reproductions of photographs, though there is some loss of delicacy, the general characters of the tissues are well preserved and, besides being very effective, are nearly all original. The histology of the conjunctiva in various characteristic forms of disease, such as tubercle, syphilis, leprosy, and pemphigus, is given at great length and with much clearness.

The time has not long gone by since, to take one example only, the common affection known as conjunctivitis was regarded as being brought on by some external cause, as exposure to cold or wet, acting on a constitution enfeebled by exhaustion, bad or insufficient diet, or by some other disease. The specific origin of gonorrhœal ophthalmia was, indeed, very generally accepted but the remaining forms of the disease were classed together under the simple appellations of acute and chronic conjunctivitis. The chapter on this subject in Mr. Parsons's work will show the remarkable advances that have been made by the aid of the microscope in the discrimination of different affections all having the common symptom of purulent discharge. Mr. Parsons, it is true, commences the section by the modest statement that "the present state of knowledge unfortunately does not admit of an accurate classification of the various forms of conjunctivitis upon a pathological basis." Nevertheless, he proceeds to point out that staphylococci have been found in cases of pseudo-membranous conjunctivitis; streptococci in Parinaud's lacrymal conjunctivitis, or a form of conjunctivitis associated with dacryocystitis; pneumococcus in the typical hypopyon ulcer; gonococcus in gonorrhœal conjunctivitis; the Koch-Weeks bacillus in acute contagious conjunctivitis; the Morax-Axenfeld diplo-bacillus in ordinary catarrhal conjunctivitis; the Klebs-Löffler or diphtheria bacillus in membranous conjunctivitis; and the Kuschbert-Neisser bacillus in xerosis, as well as other forms. The relation of cause and effect has not been established in all these cases but this is obviously only a question of time, and with more accurate knowledge of the etiology of each form of conjunctival inflammation an advance in the methods of treatment will surely follow. Mr. Parsons describes, and supplies illustrations taken from woodcuts of, each of the above-mentioned micro-organisms. The subject of granular lids and the diagnosis between trachoma and follicular conjunctivitis are discussed with much care and detail. The conflicting opinions of a multitude of expert clinical observers and microscopists from the time of Vetch (whose name is erroneously spelt Vetsch) are given. The author is himself quite satisfied that though presenting in the early stages certain points of similarity they are in reality quite different affections.

The cornea and its diseases afford a field as wide as that of the conjunctiva and are as exhaustively treated. Many readers will be glad to follow in the text and numerous reproductions of photographs the changes that are visible under the microscope in the various forms of keratitis and in the calcareous and other degenerations and tumours which are met with in this unique tissue. The profound alterations that occur in cases of wounds and ulcerations and the interesting processes that take place during recovery are well exemplified. The iris and ciliary region also constitute a large field for microscopical research. The illustrations here given include the appearances presented by the different forms of iritis, as acute and chronic, nodular, purulent, syphilitic, and tuberculous iritis and that form which accompanies leprosy; and there is also depicted the process of degeneration as seen in

atrophy and in calcareous degeneration and ossification. The cysts and tumours of these parts, of which there are many forms, are very fully figured and described; they comprise implantation, retention, congenital, parasitic, and complex cysts, and such tumours as nævus, melanoma, angioma, myoma, sarcoma, carcinoma, and epithelioma.

It will be seen from this enumeration of the subjects of the drawings that the work is remarkably complete and that it fills a gap in ophthalmological literature. The three volumes which are promised are to deal with other parts of the eye and its annexes and to discuss the diseases which affect the eye as a whole, such as glaucoma and sympathetic ophthalmia, and if they are carried out with the same completeness Mr. Parsons will have made one of the most important contributions to ophthalmological literature that has hitherto appeared. It only remains to add that to each chapter a valuable bibliography is appended.

An Atlas of Human Anatomy for Students and Physicians. By Professor CARL TOLDT, M.D. Assisted by ALOIS D. ROSA, M.D. Translated from the third German edition by M. EDEN PAUL, M.D. Brux. Fifth Section: Angeiology (Figs. 933 to 1123 and Index). London: Rebman, Limited. 1904. Price 13*s.* 6*d.* net.

THE fifth section of Toldt's Atlas is entirely devoted to angeiology. The illustrations of the arterial and venous systems are particularly numerous and well chosen but there is nothing which will strike the English reader as particularly novel in the way in which the subject is presented. As in the previous sections, the outlines appear somewhat hard and a lack of depth much detracts from the appearance of some of the plates illustrating arteries of the body cavities. Sections are introduced with advantage to illustrate the positions of the vessels in the limbs. The illustrations in the last subdivision, which is devoted to the lymphatic system, strike us as being very meagre. The increasing attention paid to these structures by anatomists had led us to expect much fuller illustration. This is the least satisfactory part of the volume in our estimation. When reviewing earlier sections of the atlas we expressed appreciation of the care which the translator had taken to bring the nomenclature in line with that adopted by the best English authorities. We notice in this section a short appendix from the same hand which embodies a series of notes on the discrepancies in the nomenclature of the arterial branches. This appendix affords very instructive reading. We give to Professor Toldt's work a hearty welcome in its English dress.

Clinical Diagnostic Bacteriology, including Serum Diagnosis and Cyto-Diagnosis. By ALFRED C. COLES, M.D., D.Sc., F.R.S. Edin. With coloured plates. London: J. and A. Churchill. 1904. Pp. 237. Price 8*s.* net.

THIS is a book written by a physician for those practitioners who are "anxious to avail themselves of some of the advantages to be derived from a bacteriological examination." It is assumed that these practitioners have not studied in a laboratory and are limited as to equipment. There are two distinct lines of treatment possible for such a work—either to attempt to give such detailed practical instructions that, unaided, the practitioner may be enabled to carry out his own investigations and to draw his own conclusions, or to present the subject in such a way that the physician or surgeon in charge of a case may select the most appropriate material for examination, preserve it in the best manner, and be in a position intelligently to appreciate the value, whether for diagnosis, prognosis, or treatment, of the report furnished by an expert to whom such material was submitted. These two lines of treatment are not infrequently confused and, indeed, it requires very considerable self-denial on the part of an author to restrict himself to the one possible aim and to remember that practical methods can only be learnt by practical work in a laboratory. Whether the present author keeps these two points of view quite distinct or not, it is certain that a perusal of the book would enable a practitioner to understand what questions bacteriology can answer in its present state and to avoid confusing the issues by examining inappropriate or badly preserved material. Dr. Coles wisely confines himself in his description of practical methods to the simplest and best and describes these briefly and with touches of personal experience which add considerably to the value of the directions.

The first hundred pages are devoted to the consideration of the acid-fast bacilli and the author's original work in attempting to differentiate between these various organisms by staining methods. Interesting and valuable as much of this work is, the absorption of so much space by this subject somewhat destroys its symmetry. Such micro-organisms as, in the present state of our knowledge, are of diagnostic importance are then successively described and practical instructions are given for obtaining the necessary material for examination. Those bacteriological examinations which require elaborate investigations—e.g., cholera, glanders, &c.—are entirely omitted. A short section deals with the parasitic fungi affecting the skin and hair. The final sections of the book are occupied with descriptions of serum diagnosis as applied to typhoid and Malta fevers and with a very short review of the work which has been done in cyto-diagnosis. In view of the needs of the practitioner the section on serum diagnosis deals chiefly with the employment of dead cultures or sterile fluids.

On the whole the book very well fulfils the objects which the author sets before himself in his preface and should prove of use to the practitioner. It is very well printed and its appearance reflects credit on the publishers.

Modern Methods in the Surgery of Paralyses, with Special Reference to Muscle-grafting, Tendon Transplantation, and Arthrodesis. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng., Surgeon to and Lecturer on Clinical and Orthopædic Surgery and in charge of the Orthopædic Department at Westminster Hospital; Senior Surgeon to the Evelina Hospital for Sick Children; Surgeon to the National Orthopædic Hospital, &c.; and ROBERT JONES, F.R.C.S. Eng., Honorary Surgeon to the Royal Southern Hospital, Liverpool; Honorary Surgeon to the Liverpool Country Hospital for the Chronic Diseases of Children, &c. Illustrated by 93 figures and 58 cases. London: Macmillan and Co., Limited. 1903. Pp. 311. Price 10*s.* net.

MANY of the deformities produced by paralysis are in no way amenable to medical treatment, for the paralysis may be absolutely permanent. Moreover, tenotomy, though often of the greatest value, cannot be employed in many cases and mechanical devices are o limited applicability. Fortunately of late years there have been introduced several new procedures which are available for the effective treatment of some of the cases for which previously very little could be done. These are tendon transplantation and arthrodesis. By tendon transplantation is meant the attaching the tendon or part of the tendon of a healthy muscle to the tendon of a paralysed muscle. Then the healthy muscle is able to perform the work properly belonging to the paralysed muscle and thus actions can be performed which are otherwise impossible because of the paralysis. In this way useless limbs may again become active and deformities such as talipes may be corrected. Arthrodesis is fixation of a joint and has a more restricted utility than tendon grafting. The work before us deals with these methods of treatment and describes the conditions for which they are suitable and the mode of their application, and we may say that the descriptions are clear

and accurate. The authors do not bestow extravagant praise on the methods which they advocate but they point out any disadvantages that may exist with regard to the application of these methods in any individual case. The book also contains a description of infantile paralysis and the chief other diseases in which paralysis may need to be treated and this account may enable the surgeon to anticipate and thus to prevent the deformities which otherwise might occur. Altogether we can commend highly this little treatise.

LIBRARY TABLE.

The Wisdom of the East: the Awakening of the Soul. A Philosophical Romance. Rendered from the Arabic, with an Introduction, by Dr. PAUL BRÖNNLE. London: The Orient Press. Pp. 87. Price 1*s.* 6*d.* net.—Dr. Brönnle introduces us in this small volume to a romance which is at once simple and captivating. He has been unable to present a translation in full but he has given to us the most interesting parts. He has tried, and successfully, to preserve the cachet, the archaic flavour, and spirit of the original text. The idea underlying the story is to show how human capacity may, unassisted by any external help, attain to the knowledge of the higher world, and so by degrees find out its dependence upon a superior Being. "In short, it describes the gradual awakening of the soul, the evolution of an original mind from its first groping in the dark to the most dazzling heights of philosophical speculation." The great charm of the book lies in its simplicity and ingenuousness. Hayy Ibn Yokdhan—the prototype of Robinson Crusoe—is a truly pathetic yet inspiring figure. The simple setting of a man living a solitary life on an island, entirely given up to meditation and introspection, is used by the author as an arena for the display of his philosophical views which cover the whole range of wisdom of those times—astronomical, geographical, cosmographic, and physiological, the whole picture touched with the wand of the master. Both myth and history are the parents of many of the most touching and tender motives of the story. Dr. Brönnle writes: "To detach and deliver the soul—if only for a few hours—from the withering despotism of everyday life and strife, grey and monotonous with its eternal round of toil, worry, and trouble; to bathe the soul in the full sunshine of sublime wisdom, depicted and represented in this simple romance, with its exquisite charm and captivating grace, clear as crystal yet pregnant with ideas that have moved the world—this was the idea which guided me in embarking upon this work."

Eye Strain as a Cause of Headache and other Neuroses. By SIMEON SNELL, F.R.C.S. Edin., Ophthalmic Surgeon to the Royal Infirmary, Sheffield; Professor of Ophthalmology, University College, Sheffield. London: Simpkin, Marshall, and Co. 1904. Pp. 58. Price 2*s.* 6*d.*—This little work is, with some additions, an address read before the York Medical Society. In it Mr. Snell lays stress upon the frequency with which headaches are attributable to errors of refraction. The patients frequently make no complaint of clearness of vision and the refractive error is often of small amount and is capable of being corrected by weak glasses. When the correction has been made the headaches cease to occur. In many instances there is a small amount of astigmatism present. Mr. Snell has adopted the following plan of demonstrating the effects of slight errors of refraction. He gives a photograph of a few lines of a leading article of the *Times* and then by placing concave, convex, and astigmatic glasses of low power before the photographic lens he shows the appearances which patients see who are correspondingly myopic, hypermetropic, and astigmatic. The aspect of the print when a − 0·75 D. cylinder glass is placed before the eye is instructive and it is easy to understand if this be the effect what an effort or strain must be made to obtain clear vision which, indeed, is only possible in some cases. Mr. Snell attributes "theatre" or "academy" headache to excessive strain on the elevator muscles.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. II. 1904. New York: Rooney and Otten Printing Co.—This interesting volume contains ten papers. The first (202 pages) is entitled "Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy with Reference to the Bacillus Dysenteriæ (Shiga)." It is edited by Dr. Simon Flexner and Dr. L. Emmett Holt. It contains the bacteriological reports of Dr. C. W. Duval and Dr. Victor H. Bassett and the clinical report by Dr. J. H. Mason Knox for the year 1902, also the investigations of 1903 consist of an introduction by Dr. Flexner, a bacteriological report by Dr. Duval and nine other observers, a pathological report by Dr. John Howland, a report on blood reactions by Dr. C. K. Winne, bacteriological and pathological conclusions by Dr. Flexner, a clinical report by nine observers, and clinical conclusions by Dr. Emmett Holt. The last ten pages concerned with the investigation of 1903 Dr. Martha Wollstein devotes to the Dysentery Bacillus in relation to the Normal Intestine of Infants. The second paper among the reprints is by Dr. W. W. Ford, Research Fellow, Johns Hopkins University, and is on the Classification and Distribution of the Intestinal Bacteria in Man. The intestinal bacteria, 50 in number, are grouped into (1) alkali-producers; (2) acid-producers; and (3) pigment-producing and spore-bearing organisms. The third paper among the reprints, by Dr. Preston Kyes, Instructor in Anatomy, University of Chicago, is entitled "Ueber die Isolirung von Schlangengift-Lecithiden." The fourth contribution is a clinical and bacteriological study by Dr. W. H. Park and Dr. Emmett Holt, a Report upon the Results with Different Kinds of Pure and Impure Milk in Infant Feeding in Tenement Houses and Institutions of New York City. The fifth paper is a contribution to our knowledge of the thermolabile complements by Dr. J. E. Sweet, the Reactions of the Blood in Experimental Diabetes Mellitus. In the sixth paper Dr. S. B. Wolbach and Dr. H. C. Ernst record their Observations on the Morphology of Bacillus Tuberculosis from Human and Bovine Sources. The seventh paper is headed "Ueber die complementophilen Gruppen der Amboceptoren" and is by Dr. P. Ehrlich and Dr. H. T. Marshall. The eighth paper, by Dr. F. G. Novy, is on the Cultivation of Trypanosoma Brucei and is from the laboratory of the University of Michigan. In the ninth paper among the reprints Dr. R. G. Perkins gives us a study of the group Bacillus Mucosus Capsulatus, with an attempt at classification of the varieties described. The final paper is on the Occurrence of Cells with Eosinophile Granulation and their Relation to Nutrition, and is by Dr. Eugene L. Opie of the Pathological Laboratory of the Johns Hopkins University. The sixth paper is illustrated with 13 very excellent plates. Its joint authors state that the greatest variations in form and staining reaction are found in rapidly growing cultures, and they agree with Coppen Jones in regard to the conditions best suited for the production of filiform and branched forms—namely, a favourable medium and free access to oxygen. The only interpretation of the great diversity of form assumed by the tubercle bacillus when grown under the most favourable conditions is that it is truly pleomorphic and should be classed among the higher bacteria.

Operationsübungen an der Leiche. (Operations on the Dead Body.) A Guide for Students. By Professor Dr. ERICH BENNECKE, Director of the University Surgical Polyclinic in the Royal Charité Hospital, Berlin. With a Preface by Professor Dr. F. KÖNIG, Geh. Med. Rat. Leipsic: H. Hartung und Sohn. 1903. Pp. 182. Price M.4.—This is an excellent little book; the matter is well arranged and the descriptions of the operations are ample. It is well suited for the use

of students taking a course of operative surgery. Especially good are the directions for the ligature of arteries in their continuity. There are 108 illustrations and though they are a little crude they show clearly everything they are intended to depict.

JOURNALS AND MAGAZINES.

The Practitioner.—The issue of the *Practitioner* for October contains at least two articles of great value from a practical point of view. The first is by Dr. John Phillips on the Treatment of Post-partum Hæmorrhage and sums up in a terse and most lucid manner the steps to be taken both to prevent and to combat this formidable and frequent complication of cases of labour. The second article we refer to is by Dr. W. Langdon Brown on the Rational Treatment of Gastric Disorders. Dr. Brown brings the principles of treatment well up to date and in line with the latest pathological knowledge. His views are clear and reasonable but we notice with some surprise that there is but little reference to test feeding.

Analytical Records
FROM
THE LANCET LABORATORY.

(1) ADRENALIN PREPARATIONS; (2) ACETOZONE INHALANT; AND (3) FLUID EXTRACT APOCYNUM CANNABINUM.

(PARKE, DAVIS, AND CO., 111, QUEEN VICTORIA-STREET, LONDON, E.C.)

1. IN inflammatory infections of the nose and throat adrenalin gives the best results when sprayed into the passages from a nebuliser. For this purpose adrenalin inhalant is convenient as it consists of a solution of 1 per 1000 of adrenalin chloride in an aromatised neutral oil base with 3 per cent. of chloretone. Applied in this way this powerful hæmostatic has been used with good effect in the treatment of hay fever and chronic nasal catarrh and in other conditions in which an astringent agent is indicated. Adrenalin ointment contains 1 part per 1000 of adrenalin chloride in an unirritating oleaginous base. The ointment is contained in collapsible tubes provided with an elongated nozzle which is easily introduced into the nasal cavities or the urethra, while a special syringe is provided for introducing the ointment into the rectum. 2. Acetozone is benzoyl-acetyl-peroxide and is a powerful antiseptic deodorant as well as an anæsthetic. Dissolved in liquid petroleum it forms a useful germicidal spray for the nasal passages. Its germicidal action begins with the hydrolysis of the compound. 3. In THE LANCET of Sept. 3rd, p. 734, we published an annotation on the pharmacological uses of apocynum cannabinum. The indications for its administration are practically those for digitalis. It possesses a very powerful diuretic action and has been used in both cardiac and renal dropsy. It is said to diminish albumin and casts as well as anasarca in Bright's disease. The powerful diuretic action of the drug has gained for it the name of "the vegetable trocar." It is pointed out that it is important to employ for this purpose true apocynum cannabinum and not the apocynum androsæmifolium.

PLASMON OATS.

(INTERNATIONAL PLASMON, LIMITED, 66A, FARRINGDON-STREET, LONDON, E.C.)

Apart from the fact that the addition of plasmon to oats necessarily raises their proteid value there are other advantages gained by the combination. To begin with, oats of the best quality are employed from which a great proportion of the irritating husk and fibre has been removed. According to our analysis the amount of insoluble fibre in plasmon oats is less than half that contained in good ordinary oats. Again, the admixture of plasmon with oats appears to preserve the natural fat of the oats and to keep it from becoming rancid. In plasmon oats, therefore, the peculiar and pleasing flavour of the cereal is retained. Plasmon oats require, moreover, a shorter time for cooking than is usually the case, from four to five minutes being ample. We have determined the total proteid in plasmon oats and have found that it is nearly 10 per cent. more than in the best kind of oats. The preparation affords a palatable, nutritious, and economical "dish."

V. S. O. P. BRANDY.

(MARGRAVE BROTHERS, BRIDGE-STREET, LLANELLY.)

We have no doubt as to the genuineness of this spirit. It gives results on analysis which accord with those given by a spirit distilled from grape wine in the pot still. The analysis also indicates age. The brandy has the peculiar delicate flavour and *goût* of the genuine Cognac article. The results of analysis were as follows: alcohol, by weight 40·50 per cent., by volume 47·80 per cent., equal to proof spirit 83·92 per cent.; extractives, 1·48 per cent.; and mineral matter, 0·02 per cent. The secondary products, calculated in grammes per hectolitre of absolute alcohol present, were as follows: acidity reckoned as acetic acid, 52·80; aldehyde, 20·90; furfural, 2·09; ethers reckoned as acetic acid, 80·00; and higher alcohols, 125·00. The total secondary products are thus 280·79 grammes per hectolitre of absolute alcohol. This spirit is entirely free from substances of a coarse nature and it is accordingly well adapted for medicinal requirements.

(1) "TABLOID" QUININE AND STRYCHNINE; (2) "TABLOID" FERRIC CHLORIDE; AND (3) "SOLOID" FERRIC CHLORIDE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

1. The value of the tabloid in which quinine bisulphate is combined with strychnine sulphate will be recognised, the strychnine being intended to counteract any depression which the use of quinine given alone might intensify. 2. The tabloid of ferric chloride represents ten minims of the B.P. tincture. It is obviously convenient, whilst it is exact for administration. There is present a small quantity of ammonium chloride as a vehicle. 3. The soloid ferric chloride contains ten grains of the iron salt and one soloid dissolved in a sufficient quantity of water to produce 40 minims forms a solution equivalent to the official strength. As a vehicle ammonium chloride is again employed in the soloid which is obviously useful for preparing standard medicinal solutions of iron.

MAGGI'S ESSENCE.

(COSENZA AND CO., 94, WIGMORE-STREET, LONDON, W.)

It cannot be disputed that flavour is a very important factor in diet. It is well known, for example, that certain of the digestive processes begin at the sight of good food and an agreeable flavour also serves as a healthy stimulus. Maggi's essence is intended to give a savoury feature to otherwise featureless food, such as a soup or other dish, and in this regard it answers admirably. According to our analysis it contains nearly 50 per cent. of solid matters, one half of which is mineral. Proteids were precipitated on the addition of bromine water. The essence is not to be cooked with the food but is to be added at the moment of serving.

LITHYOL.

(R. W. GREEFF AND CO., 20, EASTCHEAP, LONDON, E.C.)

Lithyol is a dark brown viscid fluid with a strong smell resembling that of coal gas. It is miscible with water and alkalies but is decomposed by acids. It yields abundance of ammonia on boiling with caustic soda, gives a precipitate with barium chloride, and tarnishes a silver coin owing to the presence of sulphur. Lithyol is, in fact, recommended as a substitute for ichthyol which, according to the reactions which we have just enumerated, it closely resembles. It is said to give favourable results in dermatological practice.

THE LANCET.

LONDON: SATURDAY, OCTOBER 22, 1904.

Visit of French Physicians and Surgeons to London, October, 1904.

AT the end of any serious undertaking which has involved strenuous effort it is customary to endeavour to ascertain what lessons have been learnt and what errors have been committed, and to lay these seriously to heart for future guidance. During the course of the recent visit of the French physicians and surgeons so much interest attached to the daily task and pleasure of their reception that it was impossible to estimate the full significance of the compliment paid to the English medical world, and equally difficult to attempt to assign due credit to those upon whose unremitting labour the success of the meeting depended. There could be no doubt that the *entente cordiale* already existed between French and English practitioners, and yet it remained to be proved whether it was possible to induce a number of representative men—many perhaps of the younger generation—to brave the perils of the Channel as evidence of friendly feeling, and whether it was possible to receive them in such fashion as to convince them that they were welcome and more than welcome. We have seen a result which we believe must have more than satisfied the most sanguine expectations of all concerned. It remains to analyse the machinery by which this result has been achieved and, while all deserve credit, to recall the names of some to whom the greatest credit is due.

The original idea of the visit was due to Dr. SILLONVILLE who during the early part of the year approached many of the physicians and the surgeons of the hospitals in London and discussed the projected visit with them. The primary conception was the promotion of good feeling between our neighbours and ourselves, but the cordiality with which the project was received in its initial stages soon set all anxieties at rest and paved the way for an extension of the programme. Dr. TRIBOULET and the other members of the French executive committee, whose exertions in the matter deserve all praise, formally announced the desire of many French physicians and surgeons to see our hospitals and laboratories and to become acquainted with the organisation of the hospitals and with the system of medical education in London, and we trust that the facilities afforded them will make the committee feel that its indefatigable efforts are well rewarded. On every hand the doors of our hospitals, museums, and laboratories were opened to receive our visitors and they were welcomed by representative men able and willing to take infinite trouble in explanations. The London executive committee, and more particularly the general purposes committee, had formulated a programme which left nothing to be desired and well merited the kindly and courteous recognition which marked the speeches at the concluding ceremony. Those who listened to the flow of oratory on this occasion could not accuse our guests of lack of appreciation and yet it is probable that they could hardly grasp the full significance of one feature of the visit which came as a welcome surprise to those familiar with our traditions. For the first time in its history the University of London came forward as being intimately concerned with medical education—as a teaching university and not merely an examining body. The reality of this change in the character and the future work of our University was demonstrated at the visit to the laboratories at South Kensington and it was more fully explained by Mr. H. T. BUTLIN, dean of the Faculty of Medicine of the University of London, at the *déjeuner* at which he generously entertained all the French visitors and a considerable number of English guests.

The success of every large gathering depends upon the amount of forethought and trouble taken by those by whom it is organised. The selection of Sir WILLIAM BROADBENT as chairman of the London executive committee, of the general purposes committee, and of the dinner was peculiarly happy. In all three capacities he did his utmost and this implies a great deal in whatever direction it may be exerted. His efforts were loyally seconded by the labours of the honorary secretaries, Dr. DAWSON WILLIAMS and Dr. W. JOBSON HORNE who seemed magically to evolve order out of chaos and to deal with masses of correspondence and minute details of organisation as though they were trifles. Upon Dr. J. DUNDAS GRANT fell the greater part of the strain of the financial arrangements, since his colleague as honorary treasurer, Sir THOMAS BARLOW, was precluded by urgent professional engagements from taking as full a share of the work as would otherwise have been the case. Other members of the general purposes committee—Mr. JAMES BERRY, Dr. WILLIAM EWART, Dr. DONALD W. C. HOOD, Dr. BOYD B. JOLL, Dr. GEORGE OGILVIE, Mr. D'ARCY POWER, and Dr. THEODORE WILLIAMS—all merit their meed of praise for their willing and earnest endeavours to render the meeting a success. The result was patent to all, but the silent workers who assisted in achieving that result must not be overlooked. There are many, however, whom it is impossible to name, many of the physicians and surgeons of London who privately entertained our visitors and gave them an insight into club life or into the *vie intime* of an English household. It is yet too soon for us to realise whether our guests were conscious of any shortcomings on our part; they certainly did not mention any in public speeches or in private conversations. They were agreeably surprised with the fluency with which so many of their hosts addressed them in their own tongue and some expressed a hope that a return visit would not be delayed until they were able to pay us a similar compliment. The admirable speeches of M. LUCAS-CHAMPIONNIÈRE, of Professor POIRIER (the charm of whose eloquence was universally appreciated), of M. HUCHARD, and of Professor CHAUFFARD will remain with us as memories of style, good taste, and kindliness. In conclusion we must not omit to place on record Dr. GEORGE OGILVIE'S admirable superintendence of the arrangements for the banquet and also our own sense of indebtedness to

him for the eloquence and the humour with which at the luncheon at the Imperial Restaurant he expressed in French the cordial welcome which we desired to offer to our visitors on that occasion.

The Local Government Board and Small-pox at Dewsbury.

CONSIDERABLE interest is being manifested in public health circles as to what will be the action of Mr. LONG in face of the persistent refusal of the Dewsbury board of guardians to open vaccination stations and generally to facilitate and to encourage vaccination. A large number of cases of small-pox still continue to occur not only in the town of Dewsbury but also in other urban districts embraced within the Dewsbury union. According to the *Times* it is probable that vaccination will be taken out of the hands of the guardians and if this is a correct prediction it is interesting to reflect as to what authority will be appointed to administer the Vaccination Acts. We recently expressed the hope that vaccination administration would be handed over to the West Riding county council and it is, of course, not altogether improbable that this is the action which Mr. LONG is contemplating. In our view this would be preferable to deputing the Dewsbury town council to perform the work. Were small-pox confined to Dewsbury alone this course might be advantageous, but seeing that small-pox is prevalent in other places within the Dewsbury union it would be well if the vaccination administration in the whole union could be transferred to some body which would have jurisdiction over that area, and this would not be the case were the Dewsbury town council to be intrusted with the administration of the Act for its district alone. We have, however, some hope that, in so far as Dewsbury itself is concerned, the town council will see that the necessary arrangements for facilitating vaccination are duly made. Dewsbury has already suffered severely from this outbreak and it is time that the town should be delivered from the apathy, or rather open hostility, of the guardians. The council is, we are glad to hear, at last waking up if not to its responsibilities at least to the business aspect of the position. A medical officer has been appointed to superintend the hospital and the council is taking steps to secure the services of some competent expert who will supervise vaccination and generally organise an attack upon the outbreak.

But, as we have already stated, the interest of the moment is centred in the action of the President of the Local Government Board. Will he take strong and decisive steps or will he let the case slide and allow Dewsbury to rank with Leicester in its defiance of the law? For our part we would urge Mr. LONG to act energetically and promptly. There is no longer even an imaginary grievance in connexion with vaccination. Compulsory vaccination has, at least for the time being, ceased to exist in this country, and those who are obtaining funds for the purpose of disestablishing compulsory vaccination are practically misleading the public. All that the law asks is that either a child shall be vaccinated or a certificate of exemption procured. There can be no hardship in insisting that parents shall take one course or the other and if through apathy or hostility they refuse to do either one or the other prompt prosecution is the only wholesome measure left. We feel quite sure that the bulk of the intelligent public, to whatever political party they may belong, would welcome vigorous action by Mr. LONG and we much hope that we may be able to chronicle a decisive step in our next issue.

Our reasons for preferring the county council to the town council are mainly that the larger body is more removed from petty and ignorant influences than the smaller and that the county council would have jurisdiction over the whole union of Dewsbury. If the administration of vaccination were transferred generally from boards of guardians to district councils the influence of the antivaccinationists would be diverted from the former to the latter in the case of urban districts and in this measure the district councils would undergo deterioration. It is true, however, that in rural districts the change would be but very slight and probably things would remain much as they are. But if the antivaccinationist influence is to be reduced to a minimum it is important that the public should be enlightened as to all the facts and that they should be made to appreciate the circumstance that the antivaccinationist party is endeavouring to foster an idea of persecution when nothing whatever approaching to it exists.

But this spread of small-pox in Dewsbury is not solely due to the neglect of the guardians. The town council has sown the wind in the shape of a poorly paid part-time medical officer and it is reaping the whirlwind in the guise of an outbreak of small-pox of sufficiently alarming dimensions. It is obviously impracticable for a busy general practitioner to attend to an outbreak of this nature and at the same time to do justice to his private patients, and the town council seems, somewhat late in the day it is true, to have at last appreciated the fact. When an experienced whole-time medical officer is appointed and "contacts" are diligently sought out and supervised we may expect gradually to see a diminution in the number of cases, but it has to be remembered that the epidemic is now fairly widespread and that it affects other places as well as Dewsbury. It would flutter the dovecots of municipal and Poor-law inefficiency if the Local Government Board could see its way to transfer the whole administration of small-pox prevention in the union of Dewsbury to the West Riding county council.

Is Alcohol a Food?

THIS is an old question and one upon which different views have been held in the past. A number of French observers in the year 1860 stated that alcohol was excreted by animals in an entirely unchanged form and could therefore lay no claim to the title of food. A few years later BINZ showed in confirmation of the older statement of LIEBIG that alcohol is oxidised in the living organism, forming in that way a source of heat and energy to the body, and that quite a small proportion of it leaves the body unchanged in the excretions and expired air. If this is correct alcohol acts like other foods and so should be classed among them. For many years it was regarded as legitimate not only by scientific men but by the public at large to look upon the question as one in which both views were equally entitled to consideration. It was one

of those numerous subjects on which medical men differed and the personal inclinations of the laity would probably be the main factor in determining them as to which of the two views they adopted. There is, however, at the present day no room for difference of opinion. The experiments of LALLEMAND and others who worked with him have been demonstrated to have been faulty and their conclusions entirely incorrect. It is now universally admitted that alcohol is oxidised in the animal body and in that sense is a true food. For many years no specific oxidation products could be found in the excretions after the administration of sugar, yet no one disputed then that sugar is a food, and with increased research and improvement of methods its fate in the body is now a matter of ordinary physiological knowledge. The history of alcohol is very similar.

In bringing about the knowledge of the truth on the alcohol question many investigators have taken part. In Germany ROSEMANN and NEUMANN have carried out a series of convincing and painstaking researches. But it is in America that the question has been more particularly threshed out. The American nation is, comparatively speaking, a nation of water drinkers; the prohibition laws in many States are an indication of the power that the teetotalers wield there. Now enthusiasts are much to be respected but are proverbially unwise and when in power they are apt to be tyrannical. There was no exception to the rule in this case. School teachers throughout the country were compelled to devote a certain amount of time to instructing their pupils on the dangers of alcohol and were compelled to use only such text-books as denied that it had any virtues as well. The statement that it has no food value was preached as gospel truth and the prohibition placed upon liberty of opinion was naturally resented by independent thinkers and ultimately led to the formation of what was called the Committee of Fifty. The committee included the most able of the scientific and public men of the country who decided to meet the despotic action of the ruling powers by a searching inquiry into the action of alcohol on metabolic processes. This was carried out in the famous laboratory devoted to such investigations and presided over by Professor ATWATER. Its publications will become classical and have brought conviction to all except those who do not understand the nature of evidence. They naturally do not attempt to minimise the evil effects of the excessive use of alcohol, they place due importance on its therapeutic value, and they have shown that in the sense which we have already indicated it is a true food material, for with moderate doses not more than 2 per cent. leaves the body unchanged, the remainder being ultimately oxidised into water and carbonic acid. But it has not been on the continent and in the United States only that such work has been pursued and to-day we are able to present to our readers the outcome of many years' hard work in this country in the shape of a paper by Dr. W. H. GODDARD. His experiments have been made on dogs and they fully confirm what we have stated in reference to human beings. He has investigated not merely the final products of the oxidation of alcohol but also the intermediate stages. He finds that with moderate doses about 95 per cent. is made use of as a food. But with increasing quantities this number is reduced; in such circumstances there is a partial failure on the part of the animal body to utilise the quantity administered, so that in his final experiments when the dose was pushed to excess nearly 50 per cent. of the drug was excreted unchanged or in the form of imperfectly burnt products. His conclusions coincide with the verdict of common experience and common sense, that beyond certain limits the poisonous action of alcohol more than counterbalances its food value.

A new note in connexion with this important subject has been recently struck by another American worker, Dr. BEEBE, who has worked at Yale under Professor CHITTENDEN, who is deeply interested in and a great authority on problems connected with nutrition. Dr. BEEBE'S experiments are of especial value because they have been performed on human beings previously unused to alcohol but who in the service of science consented to be dosed with fairly moderate quantities of the most commonly employed alcoholic beverages. After a short period of training they gradually became immunised to the deleterious effect of their unusual diet. During this preliminary period alcohol causes an increased excretion of nitrogen, owing to what NEUMANN calls its action as a protoplasmic poison. Following this there is a "proteid-sparing" effect which is approximately equal to that of the fat or carbohydrate which the alcohol replaces in the diet. But although the total nitrogenous waste of the body is thus economised there is an abnormal qualitative change in its distribution among the excreted materials, the main result being an increase in uric acid and other substances of the purin family. There was a good deal of individual idiosyncrasy but the most commonly observed result was as we have just stated. This is apparently due to impaired oxidative powers of the liver and may even be an index of diminution of oxidation processes in other parts of the body. If this is fully established Dr. BEEBE thinks that the prevalent ideas regarding the harmlessness of moderate drinking need revision. Alcohol has been proved to be a food in the sense that when used in small quantities the energy from its oxidation may be used for some of the body's needs but if at the same time it interferes with the normal activities of a most important organ its food value may be overbalanced by its toxic effect. Sea water may be used in the boiler of a steam-engine and the steam from its evaporation will transmit the energy of the fuel to the revolving wheels but its corrosive action on the steel forbids its use except in emergencies. We commend the analogy to our thoughtful readers before they commit themselves to a definite answer as to whether they should class alcohol as a food in the widest sense of the word.

Annotations.

"Ne quid nimis."

HERMAPHRODITISM.

CASES of so-called hermaphroditism, such as the one which was recorded in THE LANCET of Oct. 15th (p. 1081), occasionally give rise to medico-legal considerations of great interest and importance. The social and political status of the person concerned may hang in

the unsettled balance of indecision or may be decided in a summary and an empirical manner. It may be asked, What is the ultimate test and characteristic of a man and of a woman? Is it, as a matter of forensic physiology, the presence of the distinctive sexual glands? If this is so, what is the logical position in the human scheme of those beings who are either congenitally or artificially sexless? Allowing that a place should be found for those of neither sex, the cases which have been claimed as a combination of both sexes—that is, the alleged true hermaphrodites—may be left *sub judice* until an actual case has stood the test of the criticism of modern pathological research. In obstetric practice considerable common-sense is called for in dealing with the newly born pseud-hermaphrodite. A definite decision must be judiciously postponed. It is usually wise to rear such children provisionally as boys, though the late Mr. Lawson Tait, in view of the subsequent chances of matrimony, advised that they should be brought up as girls in the hope of the onset of puberty solving the puzzle. The French law allows such a child to be registered as "sex undetermined," but with us it must be either a boy or a girl. Should the medical adviser have the temerity to direct, as occasionally happens, that the local registrar must return the child as of indefinite sex his doubts will be officially ignored, for at Somerset House it will be entered as a boy. It is obvious, and, indeed, within rare clinical experience, that such an unscientific regulation leads to an awkward subsequent *dénouement*. As a matter of fact, some three persons apply yearly to the Registrar-General inquiring how they may legally change their mistakenly recorded sex. Lord Coke used to state that the law could do anything—except turn a man into a woman. But he spoke of the physical transmutation. The clinical error, affirmed by the certificate of birth, may be, and usually is, tardily rectified on the receipt by the Registrar-General of the applicant's statutory declaration, accompanied by a medical certificate, as to the correct sex. Indeed, it appears legally that pseud-hermaphrodites cannot themselves choose which sex they shall adopt but the fact is fixed for them by medical opinion. Few suits of nullity of marriage are published in the law reports but the test applied in this connexion is the ability to consummate the marriage —*habilitas ad matrimonium*. There are no recognised rules as to the registration of double monsters who are not separable by surgical means; it is the exception for such beings to survive birth, in fact, Somerset House cannot recall a return of the live-birth of "Siamese twins," and the stillborn are counted literally as nothing—*res nullius* —in our present legal system and are therefore officially unnoticed.

SOME POINTS OF HYGIENE IN THE MANAGEMENT OF TUBE RAILWAYS.

THE management of the tube railways in London committed the mistaken policy, in our opinion, of adopting one class only in its trains. In spite of extra measures which, we are told, have been taken to ventilate the tube the air of the carriages is frequently in a squalid condition and the seats and interior fittings are rapidly gathering griminess. When the compartments are quite full, as is often the case, the characteristic sickening smell of human exhalation is most revolting to the passenger entering fresh from the outside air. If the tunnels are well ventilated why cannot the train partake of some of this ventilation? Instead, the doors of the carriages are carefully closed as soon as the train enters the tunnel and the result is exceedingly uncomfortable to the passengers in a full carriage. Preach as we may the gospel of cleanliness to the masses there are still thousands who disregard its precepts and the cleanly disposed are compelled to be wedged in amongst the indifferent. Take what care a person may to minimise his chances of acquiring disease bred of dirt and foulness, all his hygienic precautions count for nothing when he is compelled to endure a journey in a packed carriage on the tube railways. And he cannot escape it by paying a little extra: he is compelled to travel in a one-class compartment and one class alone. If a man is willing to pay a few more pence to travel in a better sanitary environment, why is not such an advantage offered to him? We are sure that such an arrangement would amply compensate the companies. The tube lines are so convenient and speedy that there is necessarily a big *clientèle* and a very large proportion of this would be only too glad to pay for the sort of increased comfort which we have indicated. Ladies, we are sure, would appreciate such an advantage. Nowadays people do not travel on railways first- or second-class from any snobbish feeling of superiority but because they secure a journey in more comfortable and, in many instances, to the discredit of the railway companies concerned, more hygienic circumstances.

THE FREQUENCY OF FRACTURE OR DISLOCATION OF THE CARPAL BONES.

IN the *Journal of the Royal Army Medical Corps* for September Dr. W. S. Haughton of Dublin and Major M. P. Holt, R.A.M.C., have called attention to the fact that fracture or dislocation of the carpal bones, which is described in the text-books as of extreme rarity, is by no means uncommon. The diagnosis of "sprained wrist" has long been used to cover a multitude of injuries the nature of which has been revealed by skiagraphy. During a year no less than ten cases of fracture or dislocation of the carpal bones have come under their observation in a general hospital. They have found that in recent injuries of the wrist with extreme pain on attempted movements and possibly no deformity, and in cases of old injury followed by impairment of function and still no deformity, there usually is either fracture or dislocation of one or more of the carpal bones. The most common injury seems to be fracture of the scaphoid bone. The fragments may be more or less displaced or may be rotated on a longitudinal or transverse axis; the bone may simply be fractured across the narrow part or may be extensively comminuted. In one case permanent fixation of the wrist-joint was found to be due to comminution of the semilunar bone with subsequent formation of callus. Dislocation forwards of one or more of the proximal row of carpal bones is not very uncommon, the displaced bone lying among the flexor tendons and preventing active or passive flexion of the wrist. In one case it produced pressure symptoms on the median nerve. In cases of fracture crepitus can usually be obtained with care, especially under an anæsthetic. The force necessary to produce these injuries need not be great. Amongst the causes are falls on the hand or extended wrist, direct violence, blows on the knuckles, forcible hyper-extension of the wrist, traction on a rope encircling the joint, and hyper-adduction. To make a certain diagnosis careful skiagraphy is necessary. If there is any difficulty in reading the skiagraph stereoscopic skiagraphs must be taken. Lateral (radio-ulnar) in addition to the usual antero-posterior views will leave no doubt as to the presence or absence of a dislocation. In all cases the sound as well as the damaged wrist should be shown on the same plate. In doubtful cases the writers have sometimes found it advantageous to skiagraph the wrists in the following positions—viz., (1) both prone (palms to plate); (2) both fully supinated (dorsum to plate); and (3) both semi-prone (palms together and ulnar borders to plate). Even a fourth position with both fully pronated (backs together with radial borders to plate) was found useful. In order to acquire a good working knowledge of the skiagraphic appearance of the normal wrist plates of several pairs of wrists taken in all these

positions should be studied. In tall persons, in short, in muscular, and in delicate, variations will be found. In cases of simple fracture without displacement the treatment consists in massage and movement daily from the first. A displaced fragment should be removed. If one or more bones are dislocated reduction should be attempted. If this fails the displaced bones should be removed through a dorsal incision, which gives a very useful joint. The following are some of the cases related. A man was leading a horse by a head rope which, in consequence of the animal suddenly drawing back, became twisted round his wrist and pulled tight. Swelling on the radial side of the wrist and complete loss of movement (in consequence of the pain) followed. A skiagraph showed fracture of the scaphoid bone. Fragments of the bone and granulation tissue were removed through a radial incision. Palpable callus was thrown out and a perfect result followed. In another case a man while grooming a horse was kicked on the knuckles. There were extensive swelling over the entire wrist, apparent displacement of the lower end of the radius forwards, and fixation of the joint in the position of extension and adduction. No flexion was possible. Under ether crepitus was obtained. Skiagraphs showed comminution of the scaphoid bone. Under ether and with the aid of the fluorescent screen the fragments were manipulated into position. Some limitation of adduction remained which apparently was due to excessive formation of callus but all other movements were perfect. A better result would have been obtained if the fragments had been removed in the first instance. The paper is illustrated by three excellent skiagraphs.

A "BEAUTY DOCTOR'S" VICTIM.

AN application made before Mr. Rose at the West London police-court on Oct. 14th afforded a glimpse of the methods of an advertising quack without shedding upon the subject the full light which it deserved. The applicant, a lady's maid, asked the magistrate whether she could recover a sum of £20 which she had given to "a lady" practising in the West-End as a "beauty doctor." The unfortunate lady's maid had had an eruption on her face and fearing lest she might lose her situation had consulted a female practising in the West-End as a "beauty doctor" who had promised to give her "a clean wholesome face in ten days" for £20. She had drawn her savings from the bank and paid them over in return for a concoction the application of which had burnt her skin and made it worse than ever. In reply to an observation of the magistrate to the effect that the applicant had deliberately consulted a quack, she answered that the "beauty doctor" was in the habit of advertising that she could transform a woman of 70 into a woman of 30 years. Upon this Mr. Rose closed the interview by saying: "I am afraid that you cannot recover the money." The magistrate's answer is a little surprising if it has been correctly reported. If he had merely said that it was not a case in which satisfaction could best be obtained at a police-court and that the lady's maid had better consult a solicitor he would have given advice which could have done no harm and which might have led to the recovery of a substantial sum as damages as well as the fee which seems to have been all that the applicant thought of. It would be very interesting to see whether a "beauty doctor" would face a jury as a defendant in such an action in order to hear her specious promises exposed and the composition of her nostrums with their probable effects explained after analysis by an impartial witness. Perhaps it is not yet too late and some friend may suggest a visit to a solicitor's office where the evidence obtainable would be examined and considered more carefully than by a busy magistrate. It is not quite clear, however, that the case was not one for a criminal court, a point which Mr. Rose seems to have taken for granted. A quack of the kind described goes further, as a rule, than the mere promising of a cure, or of an attempt to cure, in return for a pecuniary consideration. The evidence in such a case when gone into is not unlikely to show false pretences as to existing facts, such as a pretence of scientific knowledge and training, or that the concoction sold contains something capable of curing. To obtain £20 from a credulous lady's maid and to inflict pain and injury upon her in addition to robbing her are at least as deserving of punishment as obtaining sovereigns from women in the social station of her mistress by telling their fortunes from the lines in their hands and from a crystal ball. Quacks, however, so long as they do not actually take life or infringe the Medical Act in a glaring manner, seem to enjoy a singular immunity from the attention of the police. In the reports in the daily press the name and address of the "beauty doctor" have not been given.

THE STATUS EPILEPTICUS: A CLINICAL AND PATHOLOGICAL STUDY.

THE opportunities afforded in modern times for the study of epilepsy in the "colonies" devoted to the care and treatment of epileptics have resulted in the production of works which were not possible in the earlier investigation of the disease. In a lengthy contribution spread over several articles of the *American Journal of Insanity* (vol. lx., Nos. 2 and 4, and vol. lxi., No. 1, 1903 and 1904), Dr. L. Pierce Clark, late assistant physician at the Craig Colony for Epileptics, New York, and Dr. Thomas Prout, late pathologist at the New Jersey State Hospital, deal with the more important aspects, clinical and pathological, of the status epilepticus—a field in the study of which they have had unrivalled opportunities at Craig Colony during five years. In the light of recent research, they say, idiopathic epilepsy or *grand mal* can no longer be considered a "functional" nervous disorder. From a study of the affection at its maximum development it is proved to be an organic disease of the cerebral cortex attended with definite morbid processes. The paper is based on the minute study of 38 cases of status epilepticus embracing typical and atypical cases; four cases of "status equivalent," consisting of stupor, delirium, and psychic seizures; and five cases of serial attacks (*état mal de passage*). For the sake of differential diagnosis four cases of hysteria major were also studied "as it closely simulates true status epilepticus in many of its phases," and also several cases of ordinary *grand mal*. The lack of description of status epilepticus in text-books is due in no small part to the fact that it occurs most frequently in the family—i.e., in private as distinguished from hospital cases. The attack is transient and the patient speedily recovers or dies, rendering the attack difficult of observation and of treatment. Status epilepticus is defined by Dr. Clark and Dr. Prout as "the maximum development of epilepsy, in which one paroxysm follows another so closely that the coma and exhaustion are continuous between seizures." It is almost always accompanied by a marked rise of temperature, with increased frequency of pulse and respiration indicative of the degree of cerebral exhaustion. Delirium, stupor, or coma, hiccough, and a variety of psychical states may be intermingled with the status epilepticus. From the convulsive standpoint, status epilepticus is usually composed of the major epileptic paroxysms, or rarely it may be composed of one prolonged tonic spasm lasting for an hour or more or until death. Status epilepticus may also exceptionally consist of psychic seizures and vertigo, with or without fever. One case under observation had 769 typical seizures during 12 hours, and the same case a few days later had a

status-period consisting of 500 psychic seizures with subnormal temperature. "Status epilepticus is a notable ending to all Jacksonian epilepsies." The transient paralysis which is shown after an attack of it is not the result of local paralysis of cerebral centres induced at the moment by exhaustion, but is, add Dr. Clark and Dr. Prout, due to "slight damage to the cortex from infantile palsies [which the patient has] outgrown to the point where even the expert fails to detect it, but the natural developmental changes cannot remove the 'epileptic scar,' which is often the only palpable evidence of the early cortical change. Astonishing as it may seem, nearly one-third of the cases of status on record have been at basis dependent upon organic lesions of the cerebral cortex in early infancy." The statistics of mortality show an equal rate of death for male and female cases probably as the hereditary factor is of equal importance in determining the occurrence of epilepsy in either sex. Status epilepticus may occur at any period from youth to old age; it is not influenced by the menstrual function. All the superficial reflexes are abolished in the coma of this state, the respiration is loud and stertorous, and the temperature and pulse usually undergo elevation. If recovery is to occur the coma subsides and is replaced by stupor, which in turn gives way to delirium and semi-exhaustion, with convalescence within a week. "The general rule for basing an unfavourable prognosis in status epilepticus may be laid down when the gradual, deliberate increase of the cardinal symptoms persists and remain unmodified by sedatives." Careful microscopic study of numerous cases leads to the belief that "epilepsy has its origin in a cerebral gliosis," but, add Dr. Clark and Dr. Prout, the lesion of the nerve cell is to be regarded as of primary importance, the changes being similar to those of hyperpyrexia described by Goldscheider and Marinesco. The neuroglíar hyperplasia is almost constantly found, but this is regarded as secondary. These findings are based on the microscopical study of seven cases of status epilepticus and 12 other cases of *grand mal*. "The first discoverable lesions appear in the nuclei of the cortical nerve cells, the nuclei undergoing disintegration of the reticulum so that the nucleoli are set free." Secondary changes occur in the cell bodies, the granules of chromatic substance (Nissl's bodies) disappearing and "leaving behind a dimly-outlined cell frame-work." The cortex becomes invaded by leucocytes, large and mononuclear, which feed upon the débris produced, while the neuroglia proliferates to take the place of the destroyed nerve cells. "The significance of these changes is important, for the epileptic process is a destructive process." The treatment is summarised as including bromides in increasing doses, the best remedy found by experience being potassium bromide 25 grains, chloral hydrate 20 grains, tincture of opium five minims, and liquor morphinæ sulphatis one drachm, of which one dose is given, to be repeated in two hours if necessary. The patient should be given plenty of water, a fact frequently overlooked.

"OUR DUMB FRIENDS' LEAGUE."

A BANQUET is being arranged to take place shortly in aid of the horse ambulance fund of this association, the object of the banquet being the increase and especially the maintenance of the ambulances provided for the removal of injured horses from the streets. Up to the present three ambulances have been purchased and placed in London—one in Norman-street, Chelsea, one in Lamb's Conduit-street, W.C., and another at 360, Mile End-road, E. A fourth ambulance, the gift of an anonymous donor, is now being built. 24 more are needed to complete the service for the metropolis. The average cost of the present ambulance is about £120 and the upkeep of each ambulance amounts to about £150 per annum and depends entirely upon voluntary subscriptions. The ambulances may be obtained at any time free of charge from the stations. The honorary secretaries of the association are Mr. Arthur J. Coke, 118, Victoria-street, London, S.W., and Mr. Pendarvis Trist, 11, Cottesmore-gardens, Kensington, W. If London and large towns were well supplied with these vehicles injured horses would not only be much more quickly relieved but the street traffic would be less hindered. In this respect we think that the law as to the destruction of horses in the streets needs alteration, as at the present moment all sorts of formalities have to be gone through before a hopelessly injured horse can be destroyed. A few years ago a horse fell down outside these offices and fractured its thigh and lay in the street for about two and a half hours before a knacker came along and shot it. The actual killing is as quick and painless as anything could be, but the police ought to be authorised to kill any obviously hopelessly injured horse at once with or without the consent of the owner.

TREATMENT OF THE OCULAR MANIFESTATIONS OF SYPHILIS.

IN the September number of the *Recueil d'Ophtalmologie* Professor Galezowski gives the treatment he has adopted in most common and the most serious forms of syphilitic affections of the eye that he has met with in the course of a long practice. Though, he remarks, we are unacquainted with the exact nature of the syphilitic virus, one point has been clearly established, which is that the specific poison primarily attacks the vascular system, including both the arteries and the veins. It deteriorates their walls and by the accumulation of cells causes true inflammatory neoplasms. The most vascular parts of the eye might therefore be expected to show the earliest symptoms of infection, and in accordance with this the iris, ciliary body, and choroid are first affected. Passing over the manifestations of syphilis in the lids, conjunctiva, sclerotic, and muscles of the orbit, Professor Galezowski especially dwells upon interstitial keratitis, which, he notices, occurs both in young and old, presenting first a period of infiltration, then of vascularisation with inflammatory symptoms, and finally a period of regression. It is common both as an inherited and as an acquired disease. Choroiditis and retino-choroiditis commence insidiously. The symptoms observed in such cases are, in succession, cloudy vision and muscæ and the necessity for employing stronger light to enable print to be read with ease; various symptoms are then observed, such as photopsiæ, micropsiæ, and metamorphopsiæ. Photophobia is not conspicuously present though sudden exposure of the eye to bright light is unpleasant. An important symptom is the occurrence of sudden loss of vision, which may last several days or weeks and be followed by complete restoration, but the recurrence of such attacks at shorter intervals leads to blindness. Under the ophthalmoscope the papilla appears as though obscured by a slight fog. This fog is due to cloudiness of the vitreous humour, which again results from the breaking up of cells in rounded and well-defined patches of the choroid and retina in the equatorial zone. At the beginning of his career Professor Galezowski followed the practice of Desmarres, which consisted in the administration of pills containing perchloride of mercury, Gibert's syrup, potassium iodide, and inunction of mercury. He subsequently, with a view of ascertaining which of these remedies was most effective, tried each upon ten of his patients. In other instances he tried the subcutaneous injection of mercury biniodide, mercury chloride, and mercury cyanide. He found that those patients made the best recoveries who were placed under the treatment of mercurial inunctions; and he still continues to give this

method the preference over all others. He never exceeds 30 grains per diem. According to the age and constitution of the patient he reduces the quantity to seven or eight grains of mercurial ointment. This should be made with lanoline and rubbed in after the skin, where it is to be applied, has been thoroughly washed with warm water and soap. The infrication should occupy about five minutes and as the ointment is irritating a fresh part of the skin should be selected daily. The system ought to be impregnated thoroughly with mercury and as this is only slowly accomplished the treatment requires to be continued for many months. He has tried, and has not found much benefit to accrue from, the subcutaneous injections of various salts of mercury, whilst they are liable to occasion intense pain. He does not employ potassium iodide and finds that on ceasing to rub in mercury it is soon eliminated from the system. The teeth should be attended to.

THE CHEMISTRY OF THE PROTEIDS.

A COURSE of lectures on the Chemistry of the Proteids is being delivered by Mr. S. B. Schryver, D.Sc., Ph.D., in the Physiological Theatre, University College, London, on Wednesdays at 5 P.M. The subject of the second lecture, to be delivered on Oct. 26th, will be the Action of Acids and Bases on Proteids and the Nature of the Final Degradation Products. The principal questions to be considered subsequently will be as follows:—(1) the chemistry of the amino-acids, cystine, tryptophane, and so on; (2) the hexone bases; (3) the nucleo-proteids and nucleic acid; (4) the albumoses and peptones; (5) recent researches on the chemistry of hæmoglobin; (6) the glyco-proteids and albuminoids; (7) general considerations on the constitution of the proteids and the action of ferments; and (8) the living proteids and their autolytic degradation. These lectures are open to all internal students of the University of London and also to medical men on presentation of their cards.

POLYURIA OF NERVOUS ORIGIN OCCURRING IN CONVALESCENCE FROM TYPHOID FEVER.

THE origin or cause of the polyuria, which is generally marked and occasionally very abundant, in convalescence from typhoid fever is still a matter of obscurity. Murchison stated in his classical work on fevers that during convalescence the urine was almost invariably copious and of low specific gravity. At this period he had repeatedly known as many as 80 or 90 fluid ounces to be passed in the 24 hours. Spitz (1882) from an extensive series of observations concluded that polyuria was present in one-half of the cases convalescing from typhoid fever. The increase of the urine was most common in the sixth week, but the most careful tests failed to reveal any indication that this was due to organic renal disease. In the *Medical News* of New York of Sept. 17th Dr. M. H. Fussel, Dr. H. Carmany, and Dr. H. Hudson have published a paper dealing with their work on the nervous factor in the etiology of this form of polyuria. The urine is, they state, free from albumin and sugar, free from sediment, and is of low specific gravity, so that it consists mainly of water. As no organic or other change of any kind could be detected in the kidneys the cause of the polyuria is regarded as due to a functional disturbance of the kidneys of nervous origin. The following typical and remarkable case, among others, has been observed and carefully studied in regard to this affection. The patient was a man, aged 40 years, who was admitted to hospital suffering from typhoid fever. He was extremely "nervous" through the entire course of the disease. On the third day after admission, and the tenth day of his illness, he passed seven quarts and nine ounces of urine and the next day seven quarts and 18 ounces. "During this period he was nervous, ... he was extremely thirsty and drank water every few minutes and passed urine at very short intervals. At this time the polyuria amounted to a veritable complication. ..... His skin was dry and he was restless." His polyuria then decreased and for ten days he passed on an average from two to three quarts daily. When the polyuria was most extreme the urine had a specific gravity of 1002; when the quantity of urine increased later to three quarts a day the specific gravity rose to 1010 and remained at about 1010 till convalescence was fully established. At no time was there any albumin or sugar in the urine and "formed" elements were absent at all times. A study of the chart shows that while in the later stage of the fever the patient displayed great nervousness, which increased for a few days and then gradually subsided, there was bodily restlessness accompanying this nervousness. In other cases it was noticed that the polyuria preceded by a few days the beginning of convalescence. "As to the cause of polyuria [at this stage] in this most remarkable case it was certainly not due to a pre-existing diabetes on admission. ..... It was not due to any organic condition of the kidneys, because the urine has always been normal as far as albumin and formed elements are concerned." There would seem to remain of the ordinary causes of polyuria but two, viz., the administration of salol during the febrile stage as an intestinal aseptic and the condition of nervousness and restlessness of the patient. The salol was stopped on the second day of the polyuria but the abnormal amount of urine continued for more than a month afterwards, so that the functional renal disturbance of polyuria could only be attributed to the abnormal nervous condition of the patient, a condition which was almost hysterical at times.

THE CRIMINAL RESPONSIBILITY OF ALCOHOLICS.

IN a paper contributed to the *British Journal of Inebriety* for October Dr. William C. Sullivan discusses the criminal responsibility of the alcoholic. The reference in this case is not to the mere drunkard or to the obvious lunatic who owes his disease to alcohol. It is to the offender, particularly the homicide, who stands in an intermediate position on the pathological borderland. He is described by the writer of this paper as being especially prone to acts of automatic violence which are not attributable to the strength of the intoxicant but to a mental abnormality the effect of chronic intemperance. There is present in him a neuropathic basis which becomes dangerously active under the habitual use of alcohol, so that when under its influence he is practically unaccountable for his actions. The diagnosis of this type depends upon: (1) previous evidences of his peculiar susceptibility; (2) characteristically variable obscurations of memory, such as belong to other cerebral automatisms, during and after the "dream phase" of his intoxication; (3) an incoherence, a lack of motive, and a frenzied violence in the act which are not in keeping with his normal state of mind; and (4) in a large proportion of cases there is associated with excitement and irritability of temper more or less diminution in the pupillary reaction to light. The effect of alcohol in such persons, it is contended, is to establish a form of temporary insanity, the outburst from an underlying and constant neurosis. It is a matter of common observation that all persons are not equally affected by alcoholic liquors and it may be conceded that the effect of these on certain individuals of weak, irritable, or degenerate brain is hardly distinguishable from positive lunacy. Of course, there are a great many more who become simply mischievously drunk but are essentially sane and to whom the punishment awarded to their violence comes as a wholesome lesson. Their case is different and does not come within the scope of Dr. Sullivan's argument, for which in

its own connexion there is a good deal to be said on scientific grounds. We are disposed to agree with him that there are cases in which drunkenness, however blameworthy at the outset, does not increase but diminishes the responsibility for crime and we share his opinion that this fact is entitled to discriminating recognition in our courts of law.

VARIOLOID SYPHILITIC ERUPTION.

CASES occasionally occur in which the eruption of secondary syphilis so closely resembles that of small-pox as to be liable to be mistaken for it. In the *British Journal of Dermatology* for August Mr. Arthur Shillitoe has published two cases. In the first a man suffered from small-pox 36 years before he acquired syphilis. The small-pox left his face and other parts deeply scarred. For the first two or three months of the attack of syphilis he progressed favourably under treatment. Then in a few days, after various premonitory symptoms, such as malaise and severe pains in the head, each variola scar became the seat of a hard, deep-red, smooth papule of about the size of a swan-shot. On the protected parts the scars were not nearly so universally implicated as on the face and hands. The eruption resembled that of a marked case of small-pox. Under treatment the affected scars rapidly flattened, leaving intense pigmentation but undergoing neither pustulation nor umbilication. Evidently the syphilitic virus acted most severely on parts the resistance of which was diminished by the previous disease. In the second case a man noticed in February, 1904, a sore on the penis. On April 23rd he was admitted to the Lock Hospital with a general eruption and sore-throat. The body was almost covered with a papular eruption, except the cheeks and oral regions, wrists, hands, scrotofemoral regions, and lower half of the dorsa of the feet. Thickly scattered between the papules were numerous pustules, many of which, especially those on the back, were umbilicated. Each pustule was of about the size of a large hempseed and was surrounded by a deep-red areola without marked basal thickening. There was marked febrile disturbance. An important point of difference from the eruption of small-pox was the immunity from the eruption of the exposed parts—face, wrists, and hands—which are those most frequently affected in small-pox.

HEREDITARY TRANSMISSION OF A SIX-FOLD MALFORMATION OF THE DIGITS THROUGH THREE GENERATIONS.

IT is known that congenital malformations may be transmitted by inheritance through more than one generation, but so striking an instance of paternal transmission of complicated malformations through three, and possibly four, generations as that recorded by Dr. R. Hilbert of Sensburg in the *Münchener Medicinische Wochenschrift*, No. 39, 1904, p. 1744, is interesting and worthy of notice. A primipara, 26 years of age, was delivered of a male child who was found on examination to present the following peculiarities. In both hands the index and middle fingers were united together throughout their whole length, possessing a common nail which, however, had in the middle a longitudinal groove indicating the line of separation between the two digits. It was easy to demonstrate that the union involved the soft parts only, since the separate phalanges and their joints could be readily distinguished in the conjoined digits. Both feet showed a fusion between the fourth and middle toes, with exactly similar characters to those in the hands, even to the appearances of the nails. In addition each foot possessed a supernumerary hallux of the same size as the normal and parallel to it, not at an angle, as is frequently the case with supernumerary digits. This extra hallux articulated with the first metatarsal bone side by side with the articulation of the normal one. In all other respects the infant was naturally developed. Apart from the multiple character of the malformations, the chief interest is in the fact that the father of the child presented precisely the same peculiarities in his digits as also did the grandfather. The latter affirms that the same conditions were present in his father but this, of course, Dr. Hilbert cannot vouch for, whereas he has personally observed the other three cases. It is of interest to note that no female member of the family has inherited the malformations.

UP to the time of going to press we had not received the complete list of entries at either the London or the provincial schools and colleges of medicine, but so far as we are able to judge from the information in our hands there will probably be a slight increase in the total number of students in London.

SANITATION IN INDIA.

THE resolution in the Home Department of the Government of India dealing with the question of sanitary reform in that country and, as an initial step in that direction, with the creation of a post of Imperial Sanitary Commissioner, which shall be altogether separate and independent from the Director-Generalship of the Indian Medical Service, is a new departure which promises to be the beginning of an administrative reform of the first magnitude. The resolution gives a long historical review of the sanitary organisation of India in the past and briefly recounts the various faltering and futile attempts which have been taken officially from time to time in order to keep pace with the progressive requirements of public health until we arrive at a time when the advances of bacteriological and other researches have been rendering sanitary science a more and more specialised study and at the same time extending the range and giving more scientific precision to its operations. The sanitary department of India for various reasons, many of which it is only fair to say were beyond its power to control or to cope with successfully, has throughout found itself lagging behind the rest of the civilised world. If this has been the case for some years past it is conspicuously so at the present time. The sanitary department of British India is, and has indeed for some time been, a confessedly weak and inefficient instrument for dealing scientifically with the numerous and often very difficult public health problems which are constantly presenting themselves for solution there.

Practically speaking, however, it is not, after all, so much from want of knowing what to do as how to do it or to get it done, as all who are really acquainted with India will recognise, that makes Indian sanitary administration, so far as its native populations are concerned, so extremely difficult. A full report of the Government resolution, together with the official review on sanitation in India, we may say will be found in the *Times of India* of Sept. 17th. It may be with some sense of disappointment that the reader will notice that the Indian Government, instead of putting forward a fixed, definite, and precise policy, proposes to adopt a slow, tentative, and cautious method of procedure in carrying out its new sanitary reforms. But all things considered, and especially taking into account all the difficulties attending the practical application of any new measures in that country, we think that the Indian Government is acting wisely in this respect. The new sanitary scheme has been succinctly reported in the *Times* of Oct. 5th as embodying the following points:—

With the sanction of the Secretary of State the Government of India have created a post of Imperial Sanitary Commissioner, separate and independent from the Director-Generalship of the Indian Medical Service, as the first step towards the creation of a new sanitary department. Major J. T. W. Leslie, I.M.S., has been transferred from the secretaryship of the Director-General to the new appointment on a salary of Rs.2000 per month, rising by annual increments of Rs.100 to Rs.2500. He is to direct and inspire the measures taken for the improvement and reorganisation of the existing sanitary machinery and will also organise research work in connexion with health problems.

The scheme already sanctioned by the Secretary of State provides for a central laboratory devoted mainly to original research of a general character and to the manufacture of certain curative *sera*. In each of the larger provinces there will be a provincial laboratory, the primary functions of which will be to conduct diagnosis and special research connected with local conditions. All the laboratories will be under the control of the Sanitary Commissioner, but the Government of India disclaim any intention of relieving local governments of the direct control and responsibility which they have hitherto exercised in sanitary matters or of weakening their authority over provincial sanitary establishments. The Sanitary Commissioner will not encroach in any respect upon the authority of the local governments over provincial officers but he will be empowered to consult and confer with them informally upon matters connected with sanitation and will in this respect occupy a position analogous to that of the Director-General of Education. The Governor-General in Council expresses the hope that by the measures now taken and the further reforms in contemplation there will be effected improvements of the general conditions of life in India with the willing cooperation of the people themselves.

MEDICINE AND THE LAW.

Butler v. Johnson.

THE plaintiff, Mr. J. J. Butler of Carnforth, brought this action in the Lancaster county court against Mrs. Johnson, a farmer, to recover £43 15*s.* for attendance upon her son and for medicine supplied. The defendant did not deny that she had employed Mr. Butler or that his fees were reasonable, but she counterclaimed against him for negligence in his treatment of her son, and this was the principal issue which his honour Judge Coventry had to try. The plaintiff, Mr. Butler, was called in to see the lad, who was 15 years of age, on April 30th. The patient had then been suffering for three days from pains in his foot. The plaintiff found nothing then to account for the pain but on May 6th after other visits had taken place an abscess had formed and had burst and Mr. Butler diagnosed osteitis. He enlarged the opening, treated the wound with antiseptics, and during May and June when the boy was very ill he attended him every day. After that period the patient grew better and when he was stronger the plaintiff made an incision into the foot. This was on Sept. 11th, after which on Sept. 18th Mr. A. S. Barling and Mr. W. D. Barrow saw the patient with the plaintiff and made a second incision, as a result of which the boy was removed to the Lancaster Infirmary where his foot was amputated. On the plaintiff's account for his fees being rendered in the following January the charge of negligence was made, the defendant contending that the treatment had been wrong and had been due to a mistake as to the cause of the pain which the boy suffered, and that had a correct opinion been formed earlier and a different treatment adopted the amputation of the foot would never have become necessary. As to this Mr. Barling, upon the plaintiff informing him of the charge of negligence, had written to the defendant as follows: "I cannot help thinking you do not understand the matter thoroughly. From the nature of the disease I don't think any treatment would have arrested its progress. I don't consider there was any negligence and I am of opinion that Mr. Butler treated your son skilfully." This opinion Mr. Barling repeated in the witness box on behalf of the plaintiff (in his capacity as defendant on the counterclaim) and corroborative evidence was given by Mr. Barrow and Dr. T. A. Baldwin with the result that the learned county court judge gave a verdict and judgment for Mr. Butler on the claim and on the counterclaim. His honour expressed his concurrence with the statement of Mr. Barling and said that he was satisfied that whether the disease had developed in 48 hours or in a longer time the lad must of necessity have lost his foot. He considered that Mr. Butler had been under a false impression all the time as to the case but that it was quite clear that any medical man might have been equally mistaken and that there was nothing to show that negligence on his part had caused the loss of the patient's foot or that there had been any such negligence as would render a medical man legally responsible. Mr. Butler had taken a sanguine view of the case and had persisted in that view longer than he ought to have, and possibly longer than another might have, done but there had not been want of competent care and skill on his part. It is to be remembered that in order to render a medical man liable on the ground of negligence in the treatment of his patient it must be shown that there was culpable want of attention and care, or the absence of a competent degree of skill and knowledge, and that the alleged damage resulted from one of these causes. A physician or surgeon does not undertake that he will perform a cure or that he will use the highest possible degree of skill but only that he will use a fair, reasonable, and competent degree of skill. The question whether he is negligent or not is a question of fact for the jury or, if there be none, for the judge.

A Garbage-monger Fined.

Frederick Jensen of Cable-street, St. George's-in-the-East, was fined £10 with £3 3*s.* costs by Mr. Dickinson on Oct. 15th for having in his possession a quantity of tins of sardines, lobster, condensed milk, peaches, tomatoes, pine-apple, salmon, apples, and tongues, all of which were bad and unfit for human food. He had sold a dozen tongues to one man upon whom he had called for the purpose and who had sold them again to a man who happened to be in his shop at the time of the transaction. Both of these persons gave evidence, as did also a third who had bought 12 tins of corned beef and two tongues in glasses for 5*s.* 2*d.* Jensen, when the condition of the goods which he had sold was brought to his notice by their purchasers, had refused to refund the money paid for them which, perhaps, accounted for the information in the possession of the Stepney borough council. To the sanitary inspector the defendant stated that he had given a portion of the garbage which he had on his premises to the dustman to take away and that he had intended some of the remainder to be used for pigs' food.

VISIT OF FRENCH PHYSICIANS AND SURGEONS TO LONDON, OCTOBER, 1904.

WE are requested by the Treasurers to publish the following list of subscriptions which have been received since the publication of previous lists. The large number of subscribers well shows how warm an interest has been taken in the visit of our French brethren by their colleagues in London. It is practically certain that there will be no occasion to make any call upon the guarantee fund.

Dr. Henry Green, £2 2*s.*; Dr. L. P. Mark, £2 2*s.*; Mr. J. Astley Bloxam, £2 2*s.*; Dr. R. A. Gibbons, £2 2*s.*; Dr. Norman Moore, £2 2*s.*; Dr. John D. Malcolm, £2 2*s.* and a guarantee of £1 1*s.*; Mr. Harrison Cripps, £2 2*s.*; Sir Alfred B. Garrod, £2 2*s.*; Dr. F. J. Smith, £2 2*s.*; Mr. Macleod Yearsley, £2 2*s.*; Dr. T. Ligertwood, £2 2*s.*; Mr. Frederic Eve, £2 2*s.* and a guarantee of £2 2*s.*; Dr. J. Anderson, £2 2*s.*; Mr. W. H. Battle, £2 2*s.*; Mr. W. A. Meredith, £2 2*s.* and a guarantee of £3 3*s.*; Dr. Sidney Martin, £2 2*s.*; Dr. Samuel West, £2 2*s.*; Mr. Noble Smith, £2 2*s.* and a guarantee of £2 2*s.*; Mr. Raymond Johnson, £2 2*s.*; Dr. P. H. Pye-Smith, £2 2*s.* and a guarantee of £3 3*s.*; Dr. Mitchell Bruce, £5 5*s.*; Dr. F. J. McCann, £2 2*s.*; Mr. Edgcombe Venning, £2 2*s.*; Mr. Stephen Paget, £2 2*s.*; Dr. A. L. Galabin, £2 2*s.*; Dr. Arthur Saunders, £2 2*s.*; Dr. James Galloway, £2 2*s.* and a guarantee of £1 1*s.*; Dr. Murray Leslie, £2 2*s.*; Mr. T. J. Bokenham, £2 2*s.*; Dr. Steele Perkins, £1 1*s.*; Dr. J. Tanner, £2 2*s.*; Dr. Page May, £2 2*s.*; Mr. Ernest Clarke, £2 2*s.*; Mr. Ernest Lane, £2 2*s.*; Dr. Baker, £2 2*s.*; Dr. Nestor Tirard, £2 2*s.*; Dr. Caton, £2 2*s.*; Dr. J. M. Bunch, £2 2*s.*; Dr. Payne, a guarantee of £2 2*s.*; Dr. James Collier, £2 2*s.*; Dr. Risien Russell, £2 2*s.*; Dr. William Hill, £2 2*s.*; Dr. Newton Pitt, £2 2*s.*; Dr. Macleod, £2 2*s.*; Dr. Morley Fletcher, £2 2*s.*; Dr. Broadbent, £2 2*s.*; Dr. Walter Broadbent, £2 2*s.*; Dr. E. A. Roberts, £2 2*s.*; Dr. Bryant, £2 2*s.*; Dr. Kingston Fowler, £2 2*s.*; Dr. Howard Tooth, £2 2*s.*; and Mr. Alfred Willett, £2 2*s.*

ST. PETERSBURG HOSPITALS FOR CHRONIC DISEASES.—The *Sviet* says the infirmary committee of St. Petersburg has settled one of the most pressing questions in the city—viz., that of accommodation for people suffering from chronic diseases, who now monopolise the beds of nearly all the hospitals in the city. To obviate this inconvenience special hospitals will be erected for this class of sufferers, beginning with consumptives.

Looking Back.

FROM

THE LANCET, *SATURDAY*, OCT. 21, 1826.

Mr. ABERNETHY resumed his lecture until he had described the situation, &c., of the *ossa nasi*, two in number, forming an *arch* for the protection of the nasal lamella, which supports the ethmoid bone. He then said: this arch is a very strong arch indeed, protecting the nasal lamella, and how important is this! If it were not so, a man having a blow on the nose might have his *crista galli* driven in upon his brain. What's to prevent it? Many a man has his *crista galli* driven in upon his brain, producing cerebral inflammation, and the man dies in consequence; I have seen accidents of that kind. Now what's to be done if a man gets a blow on his nose, and has his *crista galli* driven in upon the brain? What's to be done? why, you must try to pull it out again. You have to raise up the ossa nasi, introduce an instrument lined with sponge, raise up the depression, and then pull it out. But, luckily, this is a very rare accident, and don't believe that every broken nose is followed with such frightful consequences. You see the nose is excessively well constructed to elude the effects of violence; the blow lights on the elastic part of the nose which breaks the effect of it, and the blow may operate on the nose without driving in the nasal lamella. 'Faith, if every one had their crista galla driven in, when they have their nasal lamella broken, I myself would have had it, because on one occasion, when I was riding, my horse's head and my own came pretty near together. I was riding, and on putting the spur to him and pulling the bridle, he threw up his head and struck me with it right upon the nose. The blood flowed from it, just like as if it had been streaming from an arm after you had introduced the lancet. I got off; got into a stable near at hand; washed my face, and squeezed the bones into their proper situation as well as I could. The people were certainly very kind, and wished to send for a surgeon to me; but I told them I would rather they sent for a hackney coach (*much laughter*), which they did, and I went home in it. I then perceived, for the first time in my life, an imperfection in my sight. I could not see more than two-thirds of an object. First of all, however, I should tell you, my vision was indistinct, but I found it arose from the eclipse of the *third* of every object on the right hand. I ascertained this particularly as I went home, because if I saw such a long name as my own, for instance, *A-ber-ne-thy*, in a *bookseller's* shop window, or any such place, I could see *A-ber-knee*, but I could not see the *thigh* at all. (*Loud laughter.*) Well, I looked with one eye, then I looked with the other, and I looked with both, but still I perceived that the third of every object was eclipsed, on what I may call my right side. Now this sort of case is alluded to by Dr. Woollaston, and he contends that it might be a defect in the optic nerves. Well, I was telling all this to a medical friend of mine—a very clever man, and he said, it was *impossible*. I said, well, I don't know whether it is impossible or not, but I know that what I tell you is true. It afterwards happened that he had a fall from his horse, I believe, or something of that kind, and he had the same imperfection of sight, the eclipse of the objects being on the opposite side. I said to him, there was only one thing I regretted, which was, that when I was in that state, I had not *squinted*, to have seen how the things would have looked then. He told me he was convinced it arose from the nerve. But I said, did you squint? O *gad*, no, said he, I never thought of squinting. But since that time I have been entertained with it often, and often without having had any blow; and I have on those occasions squinted too, and it's just the same. And let those who can account for it as arising from a decussation of the nerve, do it; my opinion is, that it arises from the *irregular actions of the retina*. You know there are people who see *ghosts*, and *goblins*, and so on; not *blue devils;* I suppose they don't see any of those, but they absolutely see men and women; you know all *that* I dare say.

There is a very curious case related, of a man who was a well known character, and a man of sense,—where it was said, he used to see a number of people in the room with him. Now, he himself has described the whole of the phenomenon, and all the adjuncts to it. He has said, after taking a cup of coffee or tea, or so on, they came into his room in great numbers; and as he got better, and less nervous, he has only seen the arms or legs of the persons, without seeing any other part of them. Now this is all an irregular action of the retina. A gentleman sitting in his library one day, reading or writing, on turning round his head, saw, sitting in a chair, a woman in a red cloak. And he said, how came you in here, good woman? The woman said nothing. What is the meaning of your being here, woman? No answer was made. You have no right to be here.—Go out of the room. She took no notice of him. He got up and rang the bell for the servant. The servant came in. Turn this woman out. What woman, Sir? Why the woman in a red cloak. There's no woman, nor any red cloak, Sir. Well, go and fetch the doctor for me; tell him I am ill and wish to speak to him. The man, however, was not to be frightened by this, because he knew it was a delusion of his sight. Now I have had it so often, that it has been a matter rather of amusement to me, than anything else. I have stood before a glass, and seen the upper part of my head, and eyes, and nose very distinctly; but I never saw that I had any mouth or jaw; and I have seen my shoulders very well, but all was blank between my nose and shoulders. Why, now I say, what can you make of this, but that it is, *errors of action, or inactivity in parts of the retina?*[1]

THE TENTH INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, LUCERNE, 1904.

THE proceedings of this most successful Congress commenced on Sept. 13th with a reception at the Hôtel National given by the town under the Presidency of Dr. HERMANN HELLER. The Congress was officially opened on the following day at the Kursaal by Dr. DEUCHER, member of the Federal Council, who was followed by Professor MARC DUFOUR (Lausanne) with an admirable address.

The real work of the Congress then commenced with Professor KUHNT (Königsberg) as the first president, the later presidents being Professor de Lapersonne (Paris), Dr. D. Argyll Robertson (Edinburgh), Professor Reymond (Turin), and Professor Fuchs (Vienna). The first and certainly the most important discussion was upon the question of indemnity for an eye injured or lost raised by the elaborate and carefully written reports of Dr. Sulzer, Dr. Axenfeld, and Dr. Würdemann. The French law upon the subject of injury to a workman insists on an allowance being made to the injured employé equal to half the reduction in wage-earning capacity in partial and temporary incapacity and two-thirds in total and permanent incapacity. With the exception of Belgium most countries accept this, or a somewhat similar, principal of indemnity. The subject aroused considerable discussion.

Mr. M. MCHARDY congratulated Dr. Sulzer, Dr. Axenfeld, and Dr. Würdemann on their report and pointed out that when total loss of an eye resulted from an accident the injured man under the present system would have the greatest difficulty in securing further employment, because, from an indemnity point of view, he was a dangerous man to employ; an accident to the remaining eye might make him totally and permanently incapacitated. For this reason Mr. McHardy considered that an indemnity equal to at least 50 per cent. of the loss in earning ability should be allowed.

A commission was subsequently appointed consisting of representatives from every country, those representing Great Britain being Mr. J. Priestley Smith and Mr. George A. Berry.

The next question on the agenda was to consider the propositions of the French Society of Ophthalmology on the notation of visual acuity. This subject is closely connected with the previous one of indemnity, as it is obviously necessary to have some simple means of recording the vision of employés when first engaged.

Mr. BERRY said that he thought it a pity to attempt to attain very great accuracy; he considered Snellen's types were quite sufficient for the purpose and advised that for the illiterate a type made up of parallel lines should be used.

After some further discussion a commission was formed to consider the subject, consisting of Professor Hess, Professor

[1] Excerpt from Mr. Abernethy's Physiological, Pathological, and Surgical Observations, delivered in the Anatomical Course of Lectures, at St. Bartholomew's Hospital.

Dimmer, Professor Reymond, Dr. Charpentier, Dr. Eperon, Dr. Neuch, and Mr. W. H. H. Jessop.

An admirable plan was adopted with regard to the 61 papers which had been sent in; these were printed and distributed to the members a month before the commencement of the Congress. At the meeting the papers were taken as read and the discussions followed immediately upon the announcement of the titles. In spite of this excellent arrangement the time at the disposal of the Congress only allowed of the consideration of some 30 papers in this manner.

An afternoon was devoted to demonstrations under the presidency of Professor Fuchs. One of the most interesting of these was a lantern slide demonstration by Mr. E. TREACHER COLLINS to show the development of the suspensory ligament of the lens. Mr. Collins pointed out that the ciliary body and the lens are in contact at the fourth month of fœtal life; later there is a gradual separation of the ciliary body from the equator of the lens. It is natural to suppose that the adhesions which join the lens to the ciliary body—viz., the fibres of the suspensory ligament—would be first formed whilst those structures are in contact and that they would be stretched out and rendered tense as the structures become separated. The ciliary body, when it is first formed, occupies a position much anterior to that which it will later adopt and thus different portions of the ciliary body are in contact with the sides of the lens at different times and adhesions which form between them must originate at different times. The first to be formed are those fibres which pass between the anterior part of the lens capsule and the non-plicated part of the ciliary body (orbiculo-antero-capsular fibres). Next in formation are the adhesions between the posterior part of the non-plicated portion of the ciliary body and the posterior part of the lens capsule (orbiculo-postero-capsular fibres). The ciliary processes now commence to form and grow backwards between the rudimentary non-plicated part and the side of the lens and pass between the bundles of the orbiculo-antero-capsular fibres. The fibres therefore come to lie ultimately in the valleys between the ciliary processes. While the ciliary processes are in contact with the lateral portions of the lens adhesions form which on separation of those structures become lengthened out into cilio-postero-capsular fibres and cilio-equatorial fibres. Mr. Collins went on to show how these fibres acting in different directions were the cause of the lateral diameter of the lens growing out of proportion to its antero-posterior diameter.

An excellent exhibition organised by the members of the Congress was open daily. Among the most noteworthy exhibits were Professor Axenfeld's cultures of organisms obtained from the human conjunctiva, Mr. Jessop's collection of Indian instruments, and Professor Dimmer's apparatus for photographing the fundus oculi with some wonderful examples of his work. There was also an interesting trade exhibition by many instrument makers which was held in the gymnasium of the Pestalozzischule.

Besides many private dinners a banquet was given on Sept. 15th at the Schweizerhof and was well attended. A most delightful excursion on the lake was provided by the town on Sept. 16th when all the chief places of interest were visited. The town of Lucerne throughout the proceedings did everything possible to relieve the members of expense and to make the meeting a success and in consequence the Tenth International Congress of Ophthalmology of 1904, both from a social and scientific point of view, was most successful. The proceedings concluded with the good wishes of all concerned for an equally successful reunion in Italy in 1909.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Oct. 13th, Mr. JOHN TWEEDY, the President, being in the chair.

The SECRETARY reported the death, on August 9th, of Sir William Mitchell Banks, past member of the Council, and a vote of condolence with Lady Banks was passed. The Secretary reported the death, on Sept. 13th, of Surgeon-General James Jameson, C.B., Honorary Fellow of the College, and the PRESIDENT stated that he had written to Mrs. Jameson to express the sympathy and condolence of the Council.

The committee of the annual report submitted for the consideration of the Council a draft copy of the report to be presented to the Fellows and Members at the annual meeting to be held on Nov. 17th, 1904. The report was approved and it was ordered to be circulated.

The Council, in pursuance of the recommendation of the Jenks' Scholarship Committee, elected Mr. Charles Gibson as the twelfth Jenks scholar, till lately a student at Epsom College and now a student at the London Hospital.

Sir Henry G. Howse was re-elected a member of the Committee of Management and Mr. H. T. Butlin was re-elected a member of the Laboratories Committee.

The PRESIDENT reported that, together with the President of the Royal College of Physicians of London, he had called on the Secretary of State for the Colonies and had communicated to him the course which this College proposed to adopt with regard to the proposal to institute an examination and diploma in tropical medicine.

The PRESIDENT reported that in connexion with the visit of French physicians and surgeons to London a reception had been held in the Museum of the College on Oct. 10th.

The PRESIDENT stated that the Bradshaw Lecture would be delivered by Mr. A. W. Mayo Robson on Thursday, Dec. 1st, at 5 o'clock P.M., and that the subject of the lecture would be Cancer and its Treatment.

A letter was read from Mr. Arthur P. Simon thanking the Council for its resolution of condolence in reference to the death of his uncle, Sir John Simon, K.C.B.

A letter was read from Mrs. Trimmer thanking the Council for the donation towards the purchase of an annuity.

A letter was read from Mr. Andrew Clark, chairman of the Council of the British Medical Association, calling attention to a recently issued order of the Government of India in regard to the remuneration of medical officers for attendance on native chiefs and nobles, the withdrawal of which, as an improper interference between the patient and the medical attendant, the British Medical Association is endeavouring to obtain, and suggesting that the licensing bodies might advantageously take up the question. The Council was of opinion that it would not be expedient for the College to take any action in the matter and the President was requested to write to this effect.

ASYLUM REPORTS.

Hertford County Asylum, Hill End, St. Albans (Annual Report for 1903).—The daily average number of patients resident during the year was 587, comprising 268 males and 319 females. The admissions during the year amounted to 132—viz., 60 males and 72 females. Of these 128 were first admissions. Dr. A. Norman Boycott, the medical superintendent, states in his report that "at the present rate of increase the spare beds belonging to the asylums in Hertfordshire will be exhausted in nine years. It is probable that with the increase of population in the larger towns of Hertfordshire the actual increase [of the insane] will be at a greater rate. ..... In addition to the patients actually in asylums there are 90 Hertfordshire lunatics either in workhouses or residing with friends for whom accommodation may at any time have to be provided." Of the 132 admissions 18 were transfers from other asylums, 13 were epileptics, 11 were due to alcoholic excess, and three were criminal lunatics. The mean age of the admissions was 41 years. Hereditary predisposition to insanity was present in 28 cases. The number of cases discharged as recovered during the year amounted to 48—viz., 22 males and 26 females, or 8·2 per cent. of the average number resident. The deaths during the year amounted to 41, or 7·0 per cent. as calculated on the same basis. Of the deaths two were due to renal disease, three each to apoplexy and pulmonary tuberculosis, four to pneumonia, five each to general paralysis and to cardiac disease, six to senile decay, and the rest to other causes. Post-mortem examinations were made in 39 cases out of the 41 deaths. The general health of the inmates has been satisfactory. There have been three cases of dysentery, one of which proved fatal. Two male patients escaped but both were recaptured and taken back in a short time. The asylum was supplied during the year with farm produce of the value of £1964. The chief supplies were milk, butter, eggs, pork, beef, poultry, potatoes and vegetables. Numerous plants were also supplied to the wards from the greenhouse. The Commissioners in Lunacy

state in their report that all parts of the asylum continued to be maintained in excellent order, that the day rooms were suitably furnished and had a pleasing appearance, that the patients were quiet and orderly, that the new sewage works were completed and appeared to be working efficiently, that the beds and bedding were in excellent order, that the dormitories were clean and well ventilated, and that the medical case-books were very well kept. The committee of management states in its report that the cost of the new sewage works amounted to £2259, that papering and painting have been carried out at a cost of £614, that steady progress is being made in the laying out of the grounds, that the state and condition of the asylum have been satisfactory, and that the maintenance rate for patients has been reduced from 12*s.* 6*d.* per week to 12*s.* as after April 1st, 1904.

Durham County Asylum (Annual Report for 1903).—The daily average number of patients resident during the year was 1496, comprising 776 males and 720 females. The admissions during the year amounted to 412—viz., 251 males and 161 females. Of these 334 were first admissions. Dr. W. St. John Skeen, the medical superintendent, states in his report that the admissions were of the usual types of insanity and "as in previous years there was a large proportion of aged and feeble persons; several of these feeble cases died within a short time after being admitted. 40 of the admissions were over 60 years of age as compared with 23 the previous year; 17 were over 70 years of age as compared with 11 in the previous year." Of the causes of insanity in the admissions heredity (60 cases) and alcoholism (57 cases) were the most frequent, after which followed ill health, bodily injury and accident, domestic troubles, and old age in descending order of frequency. "42 cases of general paralysis were admitted, an increase of 19 on the previous year ..... showing that this form of insanity is much on the increase." The number of patients discharged as recovered during the year amounted to 164—viz., 82 males and 82 females, or 10·9 per cent. of the average number resident. The deaths during the year amounted to 178, or 11·9 per cent. as calculated on the same basis. Of the deaths three were due to cerebral hæmorrhage, eight to renal disease, nine to pulmonary and other forms of tuberculosis, ten to cardiac disease, 14 to congestion of the lungs, 25 to pneumonia, 39 to general paralysis of the insane, and the rest to other causes. The general health of the asylum has been good, with the exception of a few cases of scarlet fever, all of which recovered. There have been no serious injuries or casualties among the patients during the year. Two patients escaped during the year. The Commissioners in Lunacy state in their report that increased provision has been made for dealing with outbreaks of fire and securing the exit of patients from the buildings, that the asylum is maintained in very good order, that the day rooms were warm and comfortable, that the dormitories and bedding were well aired and clean, that the patients appeared to be personally tidy and well cared for, and that the medical case-books appeared to be well kept. The committee of management states in its report that the desirability of making provision for the separate treatment of tuberculous patients is engaging its attention, that a temporary hospital for the isolation of patients (in case of an outbreak of small-pox) has been erected at a cost of £247 10*s.*, and that iron fire-escape staircases for the double dormitories at Winterton have been provided at a cost of £143. Other improvements effected during the year include the installation of an efficient system of electric fire-alarms throughout the institution. A proposal by the committee to extend the main buildings with the object of affording accommodation for 90 additional patients was declined by the Commissioners in Lunacy who advised an alternative scheme to the effect of building an additional ward for not more than 60 patients at Sedgfield.

A MARTYR TO SCIENCE.—It is announced that Mr. Clarence M. Dally, an electrical engineer, died on Oct. 2nd at his home in East Orange, New Jersey, U.S.A. Mr. Dally is said to have been for seven years a sufferer from cancerous disease which was primarily due to exposure to chemicals and the action of the x rays during continuous experimental study. Some time ago Mr. Dally was one of the chief assistants in the laboratory of Mr. Thomas A. Edison, with whom he was connected for about 16 years. He was born in Woodbridge, New Jersey, 39 years ago and served for five years in the United States navy as chief gunner on the *Enterprise*.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

The Borough of Battersea.—The account given by Dr. G. F. McCleary in his current annual report of the working of the Battersea Infants' Milk Depôt is of considerable interest. An average number of between 300 and 400 were fed at the depôt during 1903 but many of these consumed the milk for a short period only. By way of obtaining some testimony other than statistical as to the value of the depôt, Dr. McCleary sent round a circular at the end of February of the present year to the medical practitioners of the district and to the visiting physicians of certain children's hospitals to which Battersea children were being taken. In answer to this circular asking for expressions of opinion as to the value of this milk 41 definite replies were received, and it must have been gratifying to Dr. McCleary to find that with one exception all were in favour of the supply, two of the practitioners having by preference fed their own offspring on the milk. One of the answers referred to the depôt as "a perfect godsend to the working classes," while another expressed the opinion that it was the only "'progressive' venture of the local borough council which has benefited the public." More than one reply regarded the depôt as having been the means of saving children's lives and a reply from the medical officer of one of the dispensaries is: "I am of opinion that the milk has been the means of saving the lives of a large number of hand-fed infants treated at our dispensary suffering from wasting, rickets, and other disorders brought on by improper feeding." In one or two instances the milk, according to the replies, has disagreed with the children, but the writer of one of these replies adds "but I have generally to blame the parents rather than the milk." Dr. McCleary regards this medical testimony as the most trustworthy evidence at present available—more so, that is to say, than statistical evidence. It is, as Dr. McCleary states, doubtful whether the value of these institutions can be adequately expressed in figures and he is probably right in withholding statistical data for the present. Certain criticisms are directed against these depôts and perhaps the one which in a sense receives most support is that which takes municipal trading as its basis. Obviously, if municipalities supplied bread-and-butter and clothes a difficulty as regards private enterprise might be created. But in the present instance it is surely reasonable to urge that this saving of infant life is, having regard to the falling birth-rate, a far more important matter from an economical standpoint than the financial dislocation which might accrue in certain directions from a general adoption of milk depôts. For ourselves we hope to see such general adoption, as we have great faith in their educational value. The question, however, has apparently arisen in Battersea as to whether if the municipality professes to supply pure milk it should not be thorough in the matter and keep its own cows. Educationally a perfectly equipped cowhouse would have great value but it is doubtful whether it is expedient to urge its provision. The precautions as regards cleanliness provided for in the contract are, it appears to us, admirable, and if they are duly carried out there should not be much to complain of.

The Borough of St. Helens.—It is interesting to compare the evidence as to the Battersea milk depôt with that contained in the current annual report of Dr. F. Drew Harris as to the St. Helens depôt which has been in operation since 1899. The result of last year's work is not altogether satisfactory, as will be seen by the appended table. The medical officer of health is unable to understand the apathy of the public "in neglecting what, on the face of it, is a most useful institution." He is inclined to infer that the distance of the depôt from the outlying districts limits its usefulness, notwithstanding the fact that a pure food can be thus obtained at such a reasonable price. He suggests that such depôts should be established in certain parts of the town.

Table showing the Results since the Depôt was Started.

Year.	No. of children on books.	Death-rate per 1000 among children at depôt.	Infantile death-rate.
1899...	232	103	157
1900...	332	102	188
1901...	282	106	175
1902...	200	82	165
1903...	183	54	137

Whether the children supplied with milk from this depôt are the offspring of the more careful parents and hence more prone on that ground alone to survive is the question which at once arises in connexion with these figures, but in our view the difference is such that the rates cannot be thus entirely accounted for and we hope that Dr. Harris's suggestion as to sub-depôts will be carried out. The figures as to cost are of interest.

	1899-1900. (8 months.)	1900-01.	1901-02.
	£ s. d.	£ s. d.	£ s. d.
Cost of installation ...	235 2 5 ...	123 7 1	32 8 7

As to this total £390 18*s.* 1*d.* Dr. Harris states that although it has been paid out of revenue it may really be regarded as a capital charge since it will not occur in future years. The current cost is thus shown:—

	1900-01.	1901-02.	1902-03.	1903-04.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Current expenditure	471 3 2 ...	402 16 3 ...	440 4 6 ...	326 7 5
Income from sale of milk	328 9 5 ...	245 16 3 ...	208 16 8 ...	139 13 8
Amount falling on rates	142 13 7 ...	157 0 0 ...	231 7 10 ...	186 13 9

The cost per life presumably saved is certainly not great.

The City of Liverpool.—Milk depôts have been in operation in Liverpool since 1901, and as Dr. E. W. Hope embodies in his annual report for 1903 a review of the work of such depôts a *résumé* may be of interest in connexion with the Battersea and St. Helens notices. It is, however, to be borne in mind, and it is a matter of some importance in relation to the problem generally, that to St. Helens belongs the credit, as Dr. Hope points out, of initiating these depôts. The first Liverpool depôt was started in the centre of a populous district where deaths from diarrhœa were numerous, and shortly afterwards another depôt, employed merely as a distributing centre, was brought into use. This place was presumably so much appreciated that another depôt with another distributing centre in connexion therewith has now been opened. It was also determined, it seems, to allow the sale from dairies of the humanised milk prepared at the depôts, this step being taken partly on economical grounds and partly with a view to interest the trade. We gather, however, that this arrangement is not altogether free from drawbacks, as the bottles are liable to be tampered with at the dairies. In point of fact, the only complaints which have been received as to the milk have been in relation to bottles supplied *viâ* the dairies. The milk is supplied by contract both by the city and country cow-keepers but the provisions of the Liverpool Milk Clauses of 1900, which apparently follow those of the Manchester Milk Clauses of 1899, give the corporation power to inspect and to control the country places. At the depôt a mixture of cow's milk, water, cream, salt, and sugar, so as to approach as near as possible to the human milk, is prepared in amounts sufficient for one feed, and the bottle and its contents are then sterilised. Verbal instructions as to the use of the milk are given and from three to five visits are made to the homes to see that the milk is being properly used. There is, however, difficulty in inducing the mothers to take their children to the depôt to be weighed. There has recently been a reduction in the infantile mortality of Liverpool but this has doubtless, as Dr. Hope states, been due to multiple causes. "It is not for one moment claimed that it is altogether brought about by the sterilised milk." From early in 1901 to Dec. 31st, 1903, 6295 infants were fed upon this milk either directly from the depôts or through dairies, the average age at the commencement of the course being three and a half months. Only 367 were admitted to the privileges of the institution after they were 12 months of age. We are told that in the great majority of instances the infants thrive, increasing in weight and remaining perfectly healthy. The closest supervision was kept over 4453 cases which were supplied directly from the depôt. Of this number 350 died, but 49 of them had been fed for less than one week; 18 had taken the milk irregularly, and 228 were ill—some of them hopelessly ill—when the milk was first supplied. The cause of death in each case was made the subject of investigation and it was found that of all those who died only 55 were fairly healthy at the time when they were entered on the books. Out of these 55 only 11 died either from diarrhœa or convulsions and in several of them it is stated that the milk had been discontinued prior to the beginning of the fatal illness. Dr. Hope, without, of course, laying much stress upon them, considers the figures as a whole in this fashion. "Out of the 4453 coming very promiscuously to the depôts at various ages and in conditions of health below the average, the mortality was 78 per 1000, as against 159 per 1000 for the whole city and 88 to 118 in the best districts and 212 to 215 for the worst." But Dr. Hope points out that the death-rates other than those among the depôt children embody also breast-fed infants and clearly if these were included the advantage would apparently be still greater in favour of the depôts. It would be useful to know, if possible, the infantile mortality of the districts from which the infants are mainly drawn and to have some general idea as to the class. The average duration of the period during which the milk was taken would also be of value. But, as Dr. Hope observes, there is in addition to the statistical evidence the testimony of parents, medical men, and personal observation—all pointing to the conclusion that infants' lives have been saved by the use of this milk on numerous occasions. We give the following figures as regards cost for comparison with the St. Helens figures.

Expenditure and Income for the Years 1901 to 1903.

	1901.	1902.	1903.
	£ s. d.	£ s. d.	£ s. d.
Expenditure ...	1874 8 10 ...	4334 18 11 ...	4259 3 5
Sale of Milk ...	518 0 2 ...	1534 13 7 ...	2230 11 1

The County Borough of Derby.—Dr. William J. Howarth reports that the death-rate from pulmonary tuberculosis in Derby in 1903 was the lowest rate on record, the actual number of deaths registered from this complaint being 104. Endeavours have been made to ascertain the source of infection in the case of persons who have been notified to be suffering from this disease but Dr. Howarth observes that it is very difficult to obtain information which "would enable one to arrive at an opinion with any degree of certainty." For instance, he was only able to discover eight houses in which a previous case of the disease had existed at a sufficiently recent date to justify the assumption of direct infection, and in dealing with cases where there was a marked family history of the disease the last death had taken place at a period so remote as to exclude the possibility of direct infection and in the majority of cases there had been numerous changes of residence. As Dr. Howarth remarks, "infection in these cases could only be associated with the earlier cases on the assumption that infection may take place and be followed by a long period of latency before the characteristic symptoms of the disease are manifested." Dr. Howarth, however, has apparently seen a few cases in which there was a suggestion that repeated visits of a healthy man to houses containing tuberculous persons may have been responsible for infection. There have been no cases, the report tells us, of what is termed secondary house infection, although the address of every person dying from consumption for the last seven years has been recorded. No case of consumption has been reported from any one of these houses.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8691 births and 4439 deaths were registered during the week ending Oct. 15th. The annual rate of mortality in these towns, which had been 16·0, 15·6, and 15·1 per 1000 in the three preceding weeks, increased again last week to 15·2 per 1000. In London the death-rate was 14·2 per 1000, while it averaged 15·6 in the 75 other large towns. The lowest death-rates in these towns were 5·1 in Tottenham, 7·6 in

Devonport, 7·9 in Handsworth (Staffs.), 8·0 in Walthamstow and in Northampton, 8·3 in Hornsey and in Cardiff, and 9·0 in Willesden; the highest rates were 20·9 in South Shields, 21·0 in Plymouth and in Stockton-on-Tees, 21·6 in Tynemouth, 22·3 in Swansea, 22·5 in Warrington, 22·8 in Sunderland, and 27·2 in Merthyr Tydfil. The 4439 deaths in these towns last week included 573 which were referred to the principal infectious diseases, against 972, 836, and 615 in the three preceding weeks; of these 573 deaths, 290 resulted from diarrhœa, 81 from measles, 69 from diphtheria, 55 from "fever" (principally enteric), 46 from scarlet fever, 31 from whooping-cough, and one from small-pox. No death from any of these diseases was recorded last week in Hornsey, Handsworth (Staffs.), King's Norton, Rotherham, or Newport (Mon.); among the other towns the lowest death-rates from the principal infectious diseases were recorded in Tottenham, Willesden, and Norwich; and the highest rates in Grimsby, Birkenhead, Wigan, Salford, Burnley, Preston, Stockton-on-Tees, and Merthyr Tydfil. The greatest proportional mortality from measles was recorded in Walsall, Grimsby, Birkenhead, Liverpool, St. Helens, Salford, and Halifax; from scarlet fever in Hanley, Barrow-in-Furness, and Merthyr Tydfil; from diphtheria in Grimsby, Stockport, Bradford, and Stockton-on-Tees; and from diarrhœa in Birkenhead, Wigan, Salford, Burnley, Blackburn, Preston, Middlesbrough, and Merthyr Tydfil. The mortality from whooping-cough and from "fever" showed no marked excess in any of the large towns. One fatal case of small-pox was registered last week in Oldham, but none in any other of the 76 towns. The Metropolitan Asylums hospitals contained one small-pox patient at the end of last week, against five, three, and two at the end of the three preceding weeks; no new case was admitted during the week and only one in the preceding week. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 1969, 2158, and 2341 on the three preceding Saturdays, had further risen to 2516 on Saturday, the 15th inst.; 377 new cases were admitted during the week, against 284, 406, and 409 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 169, 167, and 166 in the three preceding weeks, further rose last week to 194 and were 17 above the number in the corresponding period of last year. The deaths directly attributed to influenza rose to 22 last week, having been nine and ten in the two preceding weeks. The causes of 48, or 1·1 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Bradford, Leeds, Newcastle-on-Tyne, and in 52 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Leicester, Liverpool, Warrington, Manchester, Sheffield, Sunderland, Gateshead, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·0, 16·6, and 15·1 per 1000 in the three preceding weeks, rose again to 15·8 per 1000 during the week ending Oct. 15th and was 0·6 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·3 in Perth and 13·4 in Edinburgh to 18·8 in Leith and 19·4 in Greenock. The 522 deaths in these towns included 31 which were referred to diarrhœa, 21 to whooping-cough, eight to diphtheria, six to "fever," five to measles, and four to scarlet fever, but not any to small-pox. In all, 75 deaths resulted from these principal infectious diseases last week, against 87, 101, and 71 in the three preceding weeks. These 75 deaths were equal to an annual rate of 2·3 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 60, 58, and 36 in the three preceding weeks, further declined last week to 31, of which 15 were registered in Glasgow, four in Edinburgh, four in Dundee, three in Aberdeen, two in Paisley, and two in Leith. The deaths from whooping-cough, which had been 17, 23, and 20 in the three preceding weeks, rose again to 21 last week, and included 12 in Glasgow, five in Edinburgh, and two in Paisley. The fatal cases of diphtheria, which had been four and five in the two preceding weeks, further increased last week to eight, of which three occurred in Edinburgh and two in Glasgow. The deaths referred to different forms of "fever," which had been three, eleven, and six in the three preceding weeks, were again six last week and included two in Glasgow and two in Greenock. The fatal cases of measles, which had been three, one, and three in the three preceding weeks, further rose last week to five, of which three were registered in Glasgow and two in Aberdeen. The deaths from scarlet fever, which had been four and one in the two preceding weeks, rose again to four last week, and included two in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 66, 75, and 73 in the three preceding weeks, increased to 76 last week, but were slightly below the number in the corresponding period of last year. The causes of 20, or nearly 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·9, 19·0, and 17·5 per 1000 in the three preceding weeks, rose again to 21·6 per 1000 during the week ending Oct. 15th. During the past four weeks the death-rate has averaged 21·0 per 1000, the rates during the same period being 14·0 in London and 14·4 in Edinburgh. The 157 deaths of persons belonging to Dublin registered during the week under notice were 30 in excess of the number in the preceding week and included 12 which were referred to the principal infectious diseases, against 34, 19, and 15 in the three preceding weeks; of these, eight resulted from diarrhœa, three from whooping-cough, one from "fever," and none from small-pox, measles, scarlet fever, or diphtheria. These 12 deaths were equal to an annual rate of 1·7 per 1000, the death-rates last week from the principal infectious diseases being 1·3 in London and 2·0 in Edinburgh. The fatal cases of diarrhœa, which had been 28, 16, and ten in the three preceding weeks, further declined to eight last week. The three deaths from whooping-cough corresponded with the number in the preceding week. The 157 deaths in Dublin last week included 49 of children under one year of age and 39 of persons aged 60 years and upwards; the deaths of infants showed a marked excess and those of elderly persons were slightly above the number in the preceding week. Four inquest cases and two deaths from violence were registered, and 42, or nearly a third, of the deaths occurred in public institutions. The causes of 11, or 7 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff Surgeon in His Majesty's Fleet:—George Robert MacMahon and Robert Thomas Gilmour (dated May 16th, 1902); Edward Thomas Philip Eames (dated Nov. 14th, 1902); Robert John Mackeown (dated May 15th, 1903); Ernest Sydney Tuck, Arthur William Bligh Livesay, and Michael Joseph Smith (dated Nov. 12th, 1903).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. Maconachie is placed on temporary half-pay on account of ill-health (dated Oct. 11th, 1904). Colonel W. J. R. Rainsford, C.I.E., is appointed Principal Medical Officer, Bermuda, and Lieutenant-Colonel P. H. Johnston, C.M.G., Senior Medical Officer, Jamaica. Lieutenant-Colonel S. C. B. Robinson is appointed to the charge of the Military Hospital at Colchester. Major N. Faichnie has arrived at York for duty as Sanitary Officer, North-Eastern and North-Western Districts. On arrival in India Captain J. H. R. Bond is attached to the Station Hospital, Poona, and Captain A. W. Gibson to the Station Hospital, Kirkee. Lieutenant A. A. Meaden is held in readiness for service in India. The following officers are posted to the Indian Commands as under:—Lieutenant-Colonel L. W. Swabey, Major H. M. Adamson, and Major B. J. Inniss to Bengal; Lieutenant-Colonel F. J. Jencken to Bombay; Major C. W. Reilly and Lieutenant F. M. G. Tulloch to Madras; and Lieutenant B. G. Patch to Punjab.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant C. R. Browne, 3rd Volunteer Battalion

the Gloucestershire Regiment, to be Surgeon-Lieutenant (dated Oct. 19th, 1904).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 3rd Middlesex: Surgeon-Major A. Lingard to be Surgeon-Lieutenant-Colonel (dated Oct. 15th, 1904). 1st Northumberland: Surgeon-Captain J. V. W. Rutherford to be Surgeon-Major (dated Oct. 15th, 1904).

Rifle: 3rd Volunteer Battalion the Royal Welsh Fusiliers: Surgeon-Major W. J. Morris resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Oct. 15th, 1904). Galloway: Joseph Hunter to be Surgeon-Lieutenant (dated Oct. 15th, 1904). 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment): Surgeon-Lieutenant J. Hamilton to be Surgeon-Captain (dated Oct. 15th, 1904).

THE MEDICAL ADVISORY BOARD.

The Secretary of State for War has approved of the reappointment for a further period of three years of the present civilian members of the Advisory Board for Army Medical Services—namely, Sir C. B. Ball, Dr. J. Galloway, Sir E. Cooper Perry, and Sir Frederick Treves, Bart., K.C.V.O., C.B.

PRIZE DAY AT HASLAR.

The autumn course of instruction for surgeons of the Royal Navy at the Royal Naval Hospital, Haslar, terminated on Oct. 12th. Mr. T. Pickering Pick, consulting surgeon to St. George's Hospital, who had a son among the candidates, gave a short address and distributed the following prizes: gold medal, Surgeon G. O. M. Dickenson (University of Durham); microscope, Surgeon D. D. Turner (St. Thomas's Hospital); and silver medal and books, Surgeon W. N. Horsfall (University of Melbourne). The Director-General of the medical department, Inspector-General H. M. Ellis, was also present. The combined result of the entrance examination and that at the end of the course is as follows:—

	Marks		Marks.
*W. P. Hingston	—	J. M. Gordon	3301
H. A. Kellond-Knight ...	4238	J. D. Keir	3288
A. B. Cox	4063	L. C. Robinson	3223
H. B. German	3991	F. R. Featherstone	3164
D. D. Turner	3865	G. Nunn	3107
B. S. Robson	3862	F. E. McCune	3101
G. Moir	3852	H. Stone	3089
B. Pick...	3731	T. E. Blunt...	3055
A. A. Chancellor	3678	J. McCutcheon...	2982
G. O. M. Dickenson... ...	3663	G. E. Hamilton	2932
N. B. V. Jacob	3603	W. T. Haydon	2679
J. H. McDowall	3490	W. L. Hawkins...	2656
A. B. Marsh	3392	†W. N. Horsfall...	—

* Entered by a previous examination but permitted to complete a civil appointment. Had only to qualify at Haslar.
† Entered by nomination (Australia).

THE EXPEDITION TO LHASA.

According to a Reuter's special service telegram we learn that the headquarters with the last column of the British force had arrived at Phari Jong after a most trying march over the Tang Pass and that 72 men who fell exhausted in the pass had to be carried in. It is highly probable that an official history of the expedition to the hitherto unapproachable city of Lhasa will in due time be published by someone who took part in it. When this appears it will show that the expedition was unique in character. The march to and from Lhasa involved a considerable amount of hardship on account of the extreme cold existing at the great altitude of some of the mountain passes crossed—17,000 feet, for example—and of the difficulties of transport which had to be surmounted, more especially, perhaps, on the part of the hospital and sick service transport. The expedition was most agreeably impressed with the beauty of the scenery and flora of the country in the neighbourhood of Lhasa. As regards the misgivings that have arisen owing to any informal nature and want of proper official ratification of the treaty these need not, it is thought, prove of importance, seeing that Chumbi valley—the key to Tibet—can be occupied pending the payment of the indemnity. The country is stated to lend itself to new and less difficult routes by road-making and if such be the case it will be comparatively easy for the Indian Government to secure that the treaty is ultimately carried out by the authorities at Lhasa.

THE WAR IN THE FAR EAST.

At the moment of writing the great battle, or series of battles, of the Shaho, almost unprecedented among the most sanguinary engagements of modern times, is still going on. The fighting has been hard and almost incessant and as men are not mere machines it may be inferred that the physical endurance and nerve centres of both sides have been exhausted by the continuous strain of battle. Of the losses—killed, wounded, and missing—there is no need to speak further than to say that on any estimate they have been appalling and, especially on the side of the Russians, far beyond the power of any Red Cross organisation to cope with. It is computed that 23,000 wounded arrived at Mukden in the course of a week exclusive of those brought back from the fighting front by a more direct route to Tieling. Owing to the state of the weather and the bad condition of the roads their transport must have been extremely difficult and have given rise to much suffering. And it is appalling to the imagination to picture the number of stricken and wounded soldiers who must have wandered afoot from the field in search of succour or some temporary rest and shelter. It may be taken as strong evidence of the fierce character and determination of the fighting and of the discipline of the Russians that so few soldiers of General Kuropatkin's army seem to have been taken prisoners. Whether the recent counter-attacks on the part of the Russians may be assumed as merely rearguard engagements to cover the retirement of the main body, as on the previous occasion of General Kuropatkin's masterly retreat from Liaoyang, or not, there can be no doubt that great advantage has been gained thereby in giving the troops rest and time for recuperation, for stripping battlefields of their wounded, and for the application of some partial or complete system of evacuation of overcrowded hospitals. So far as can be gathered at the present time it does not seem that anything has been really accomplished on any broad and general scale to stem the advance of the three Japanese armies in the field under the supreme command of Marshal Oyama. There remains one point to which, if it does not strictly come within the purview of the medical journalist, we may nevertheless be pardoned for calling attention, for it has an all-important bearing on the present war. It must never be lost sight of that the command of the sea means everything to the Japanese. It is their recognition of this fact that explains why they have been prepared to sacrifice, and have already actually sacrificed, so many lives in their hitherto premature and fruitless attempts to capture Port Arthur in order to be in advance of the possible arrival of any Russian fleet. If the Czar's navy could defeat Admiral Togo at sea and relieve Port Arthur the whole complexion of affairs in the Far East would be at once changed.

The *Pharmatzevtitcheski Viestnik* says that a staff of men is about to be sent to the Far East for the purpose of freezing the bodies of deceased soldiers whose relatives may desire to have them sent home.

A member of the sanitary medical staff writes to the *Russki Viedomosti* on the arrangements for removing the wounded. Giving his experiences after the battle of Liaoyang, he says: "I travelled in a train in which over 700 wounded were carried away from the battle of Liaoyang. On the floor of an ordinary goods waggon lay about 25 wounded men, many seriously wounded, and some even fatally. There were no mats, no straw: only a kind of filth on the floor—a mixture of refuse and dung; for cavalry had travelled in these waggons and they had not been cleaned out properly. There were but three doctors to the whole train. The available quantity of bandaging materials and medicines was exceedingly limited. There were no pails, no jugs, nor yet spoons in the waggon. After the battle of Liaoyang there were many such trains in which the wounded did not taste of warm food for days except such tea with bread and eggs as were supplied by organised village help on the line of travel."

RUSSIAN WOMEN'S PROFESSIONAL PROJECT CURTAILED.—The projected women's university in Moscow, says the *Sviet*, will not be carried out nor in view of the difficulty in installing the Medical Women's Institute in Moscow will that take form either, and a more practicable step will be adopted. The Minister of Education has been asked to allow a medical faculty to be attached to the Moscow Women's High School. The funds contributed to the Women's Medical Institute would be diverted to the less pretentious establishment.

Correspondence.

"Audi alteram partem."

THE DECLINE IN THE CONSUMPTION OF LIGHT WINES.

To the Editors of THE LANCET.

SIRS,—The presence of so many of our French *confreres* in London in the capacity of most welcome guests made the annotation on the decline in the consumption of light wines, especially claret, in THE LANCET of Oct. 8th very opportune. All who are conversant with the recent teaching of science, whether physiological or medical, in regard to the action of alcohol on the body will agree with you as to the demoralising influences of spirit drinking. The medical profession of France, equally with our own, is profoundly impressed with the part played by alcohol in the degeneration of race, physical and moral. As a nation we are threatened with the loss of the "bad pre-eminence" we have had hitherto as consumers of alcohol. Both France and Belgium threaten to surpass us. But we are bad to beat. A very remarkable article in the financial supplement of the *Times* of Oct. 10th shows the enormous quantities of whisky which are being produced to the ruin apparently of the trade as well as the health of His Majesty's subjects. The writer shows that the over-production still goes on and that the trade finds itself "overwhelmed in a perfect ocean of whisky." In this fate the public is largely interested, having been tempted by the large profits ten years ago to invest their money in the creation of new distilleries. It is true that there seems to be some pause on the part of consumers in this mad play with a most seductive spirit. There was a decrease in the consumption last year of over 500,000 gallons. Speaking financially, the writer in the *Times* says the demand during the year ending March 31st, 1904, "*left a good deal to be desired*"; but even so, 34,103,111 gallons of the home-made spirits were retained for consumption. This seems a prodigious and ominous quantity to be disposed of by the cells of the liver, kidney, and brain of the nation. And though Scotland drinks her own full proportion with the effect of a large increase, according to Dr. T. S. Clouston, of insanity, she sends the bulk of her huge production for consumption on the south side of the Tweed.

However the shareholders in distilleries may mourn to see the declining consumption of whisky, those who follow the scientific demonstrations of the havoc wrought by alcohol will rejoice. The great question for us is our responsibility as a profession. Are we by our prescriptions or our example giving currency to the notion that whisky and the stronger forms of alcohol are better than light wines and claret? I wish I could be quite clear in my own answer to that grave question. There is certainly in some quarters a disposition to humour the popular taste for whisky and the stronger wines—to revert to the old customs which Cobden's treaty with France in 1860 did so much to improve. I have even heard on good authority that in one of our watering-places, where patients are supposed to get the best guidance out of rheumatic and gouty troubles, the stronger alcoholic drinks are being prescribed with an accommodating adaptation that would shock some of our older physicians and younger physiologists. Nothing will more perpetuate the undue repute of foreign health resorts than any connivance by British physicians at the palpable errors of British custom, at the tendency of our patients to undo at the hotel table all the good done in the spa or the bath-room. Your article of the 8th brings us all back to our professional responsibility for the decline in the consumption of light wines in favour of heavy wines or the drinking of ardent spirits, the social and moral aspects of which, as you say, are worth serious reflection. It is gratifying to know that a similar note of caution is being given by professional leaders in all the great European nations, which have need in these days of world-competition to put themselves into the best health conditions.

I am, Sirs, yours faithfully,

Highbury place, Oct. 18th, 1904. JAMES GREY GLOVER.

To the Editors of THE LANCET.

SIRS,—In the annotation on the above subject in THE LANCET of Oct. 8th, p. 1035, you ask for reasons. I agree with you that the pernicious habit of taking potent spirits, especially whisky, during the day interferes with our relish for the less potent but more richly flavoured wines. Other social causes, I believe, are bringing about the same result, and especially smoking. I remember an old saying "that a big drinker was never a great smoker." That I think applied to the time when men got drunk on port wine. No man to my mind can appreciate any fine wine after he has been smoking a pipe, cigarettes, or cigars during most of the day, but smoking does not interfere with spirit-drinking. Again, the courses of our present-day dinner are more varied, more numerous, and more highly seasoned than those of our grandfathers. To begin with a hors-d'œuvre, end up with a savoury, and wash the whole down with say two kinds of wine, a cigar, and perhaps a cigarette in the middle of the dinner is hardly a suitable preparation for the full appreciation of a first-class wine. It reminds me of the man who ate successively and continuously slices of apples, pears, and onions, and was not a little surprised to find after a time that he became unable to distinguish by taste between these different substances. In the matter of dining I think a little more simplicity is desirable. The leisured classes in our grandfathers' time, say the early part of last century, were wiser. Their luncheons were simpler and were washed down with home-brewed ale or amontillado. Their dinners if heavy consisted of fewer courses and the dishes were less highly spiced and were accompanied with a decanter of toast-water. After such a feast our grandfathers were well able to discuss the relative merits of a crusted port, a brown sherry, or a full-bodied claret so long as they kept to the one bottle apiece.

I am, Sirs, yours faithfully,

Oct. 17th, 1904. R. PROSSER WHITE.

THE BOILING OF MILK.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Oct. 1st (p. 979) you kindly printed a letter from my pen advocating the use of "dried milk" as a substitute (during certain months of the year) for cow's milk in an impure and poisonous condition, due mainly to the insanitary surroundings of the milk trade and domestic storage of milk, these surroundings having hitherto proved difficult to rectify. Until the profession and sanitary authorities have succeeded in inaugurating the millennium, in the circumstances it will be necessary to devise the "next best thing," if the appalling death-rate from infantile zymotic enteritis is not to continue unchecked. My letter was written with due regard to the subject under consideration and in connexion with the materials furnished by preceding letters from other members of the profession. I would refer you to "advantage" (15), "it can be used turn about with good new milk if new milk is scarce or is unobtainable, as during a hot night in summer." You print three letters commenting on my proposition in THE LANCET of Oct. 8th (p. 1045). I now crave the kind courtesy of replying to the same.

Dr. J. M. Fortescue-Brickdale's letter is reasonable, informed, and thoughtful, and deals with the matter in just such a manner as it ought to be, and to him my thanks are due. I would add, however, that the dried milk powder can be prepared in such a way as to insure its containing nearly 27 per cent. of fat or any lower percentage if desired.

Dr. Edmund Cautley's letter contains a few grudging admissions. Had Dr. Cautley paused to consider and carefully read my letter, along with those previously published and had made himself acquainted (solely to safeguard himself from pitfalls) with the contents of my book he would have spared your readers and myself the somewhat archaic and futile information that "improvement in the hygienic surroundings of the infant and education of the mother, &c.," was what was of the "utmost importance." If Dr. Cautley will honour me with the perusal of Chapters I., II., and XI. in my book he will, I am sure, exonerate me of ignorance implied by his letter as regards the foregoing subject matter. Dr. Cautley charges me with advocating the use of proprietary foods; this I at once repudiate. On pp. 108, 109, and 131, Appendix (op. cit.), he will find no justification for his accusation. Further, I do not look upon "plain dried milk" as in any way a proprietary food and, as proprietary foods go, "dried milk" is no more proprietary than "peptonised

milk" or "sterilised milk." What I recommended was the best dried milk which I had yet come across, and inasmuch as Messrs. Freud and Co. had supplied me with the same I gave their address for the convenience of your readers who might care sufficiently about the attempt to stem the tide of infantile diarrhœa to apply for some for trial purposes if they so desired. It ought to have appeared to Dr. Cautley quite superfluous to explain to your readers what they would or would not correlate from the term "pure milk" as used by me. I certainly did not say "new milk"; and I may be pardoned for pointing out that "pure milk" might be reasonably expected to mean milk free from bacterial and chemical impurity, as also being milk which was not impure on account of deficiencies as to its component elements or the purity or impurity of added water. To suppose that I meant "milk fresh from the cow" is, I think, asking your readers rather too much. This looks rather like twisting my words in order to create capital for controversy.

Dr. Cautley asks what guarantee is there that the milk powder might be as pure as it claims to be and that it was made from clean, fresh milk, devoid of bacterial contamination and their products; and states that the use of dried milk is no new departure. The use of dried milk is no more a new departure than the past futile attempts to stem the torrent of deaths from infantile enteritis despite the transcendental intellects engaged thereon; the poor results from a practical work-a-day point of view being the cause of this correspondence. As for guarantees of purity surely the honesty, integrity, and interests of persons preparing and vending the milk powder will count for something. For the rest Dr. Cautley's past work and experience, not less in duration than my own, should have enabled him to answer this for himself. A moment's thought by anyone will at once tell him that a soluble, non-cheesy, non-mawkish, palatable milk powder cannot be prepared from anything but good, sound, fresh, "new" milk, as the mere act of withdrawal of the diluting water will throw up into strong relief any deficiencies existent as regards acidity, quality, smell, taste, &c. As a matter of fact, I have ascertained that the milk used for the particular milk powder recommended by me is kept in refrigerators from the time it is drawn from the cow until it is sterilised and converted into powder, which is completed in as short a time as possible.

As I contend that good milk powder is quite equal to pasteurised, boiled, or sterilised milk, and Dr. Cautley admits that rickets and scurvy "*may*" follow the "*prolonged*" use of the above, I claim, that as I am not insisting on "*prolonged*" use, but its use during certain short periods, with or without admixture with fresh "new" milk, my suggestion is so far supported by Dr. Cautley. Dr. Cautley agrees, as do other authorities, that the children of the poor from one cause and another are not so liable to scurvy as the children of the rich (who have access to the most up-to-date and recently qualified practitioners), and as he admits that milk powder might be used with "*impunity*" and "*even advantage*" in some cases, and as I chiefly advocate it for the use of the poor in insanitary surroundings during the hot months of the year, I do not see the necessity for labouring the question further after testimony such as this which I greatly value. All I ask is, that the proposition shall be temperately and reasonably tried and considered with due regard to the fact that enteritis is often immediately fatal and is caused by the use of unboiled or boiled impure milk, and that scurvy and rickets are chronic in their course for the most part and give time for, and good prognosis of, cure. My suggestion to use good dried milk can now be submitted once more to the judgment of your readers as not quite so senseless and devoid of practicability as Dr. Cautley appears to have been desirous of proving.

Dr. Ralph Vincent in the same issue contributes a letter noteworthy for nothing but the assumption that I do not possess sufficient knowledge of the subject on which I venture to express an opinion and to make a proposition. Dr. Vincent asks to "remind" me concerning the boiling of milk and the causation of scorbutus. If he will spare the time to procure a copy of my book he will see that I was not unmindful of the matter (see p. 54). I have the greatest possible respect for Dr. L. Emmett Holt as an authority and my memory is not so short but that I need much "reminding" on any matter connected with any problem arising in the care of, and feeding of, infants among rich or poor. Dr. Vincent's knowledge being considerably more recent than my own, of course is green and fresh and tends to bulk largely on his horizon to the exclusion of other factors bearing on the matter. I am pleased to see that he has given evidence before the Inter-departmental Committee on Physical Deterioration. In this he has the advantage of me, as I have not yet convinced myself that my experience has been productive of sufficient material to entitle me to deliver myself so authoritatively.

I consider the materials of Dr. Holt when misapplied practically as the "little knowledge." I do not include Dr. Holt in my list but would suggest Dr. Vincent as an efficient recruiting officer for that list. Dr. Vincent expresses his distress that "so many members of the profession" persistently refuse to really consider the extreme importance of food of the infant in regard to structure and development. If he will read my book his distress will at once cease as far as I am concerned; the other members of the profession will, no doubt, please note and amend their shortcomings. Dr. Vincent says of milk powder: "It is not a *food* for infants." For my part, I am glad he does not by contrast assert it to be "raiment." Dr. Vincent asks us to continue to feed the children of the poor and ignorant on milk which has not been boiled or sterilised. If he is not asking us to approve the present deplorable mortality and perpetuate it, he is in possession of the secret for which the whole world, Dr. Cautley, and myself have been searching in vain. He ought at once to lay it before his professional compeers. My sincere apologies are due to Dr. Vincent in that he should have been misled into hanging me up as an ignoramus of the merest rudiments of infantile alimentation; he can, however, exonerate me of any intention to mislead, as unfortunately my work and writing on the subject had practically ceased some time before Dr. Vincent's advent into the ranks of the profession. He could then not fairly be accused of intentionally "ignoring" my humble efforts as a factor governing strongly anything I might write or suggest during any discussion under the heading infantile alimentation. This closes the discussion as far as I am concerned, though I adhere to my previous letter in every detail.

I am, Sirs, yours faithfully,

F. W. FORBES ROSS, M.D. Edin., F.R.C.S. Eng.,
Oct. 10th, 1904. D.P.H. R.C.P.S. Lond.

To the Editors of THE LANCET.

SIRS,—The relative value of boiled and unboiled milk could, I should think, be pretty easily settled by feeding a certain number of calves with boiled milk and noting results.

I am, Sirs, yours faithfully,

Bexhill-on-Sea, Oct. 10th, 1904. F. P. ATKINSON.

To the Editors of THE LANCET.

SIRS,—May I be permitted once again to enter into the discussion *re* the "boiling of milk," as it has unfortunately wandered considerably from the original point at issue? That point carefully set forth by Mr. R. Bevan and restated by myself has never really been under discussion at all, and it is this—viz., that if milk be boiled and subsequently left to stand for any considerable period in warm weather, it will often undergo a secondary fermentation which will render it in all probability toxic and certainly unfit for an article of diet and that this condition not being marked by any outward change is therefore all the more dangerous. This fact can be verified by anyone. I pointed out also that boiling destroys nature's precaution against this change, and finally mildly hinted, since it is very necessary to be able to keep milk in the summer, that the only way is to use a preservative as a "home" treatment. Personally, I am quite ready to admit that our knowledge of the physiological action of the usual preservatives is far from profound, but one would scarcely think so judging from the very positive statements made before the Departmental Committee and elsewhere, and unfortunately the general bearing towards any evidence in favour of preservatives is one which savours of the worst type of scepticism.

As a matter of fact, it is at the present time "unorthodox" to suggest that preservatives have their use in everyday life, but are all things that are unorthodox necessarily wrong? Only a few years ago it was unorthodox to believe that bacteria were the best agents in the purification of sewage and the clamour raised at the original introduction of vaccination might be said still to ring in our ears. The fear of abuse blinds our eyes to the benefits

that may accrue from proper use. What are the alternatives adduced in the other communications that have appeared under this heading? (1) the use of a milk powder, but this being rather outside the question need not be discussed; (2) that milk should be pasteurised and then kept cool—eminently desirable, no doubt, but quite impossible in any but well-to-do houses; and (3) the more general opinion that the milk-supply should be placed on a proper footing. There can be no doubt about the desirability of this last and the great benefit that will accrue, but so long as the wind blows and the dust of our city streets is carried about by it, I fear this trouble will continue and if dust enters milk, boiling only increases the suitability of that medium for the rapid extension of the contamination under favourable temperature conditions.

If it be necessary, then, to keep milk sweet during the hot months in the "home" there is really no method open to all and sundry at the present time but the *home* use of preservatives, and of these I would suggest formalin. No doubt this is a very poisonous substance, but so is strychnine, and yet that property does not debar the latter from being a very beneficial therapeutic agent in proper amounts even for prolonged treatment. Is it, after all, "a counsel of despair" to advocate an unprejudiced and scientific attitude towards the case for preservatives, for which is more terrible, the rather hypothetical "bogey" of that name or the stern reality of infantile diarrhœa?

I am, Sirs, yours faithfully,

Hammersmith, W., Oct. 14th, 1904. CECIL REVIS.

THE CENTRAL MIDWIVES BOARD AND IRISH TRAINED MIDWIFERY NURSES.

To the Editors of THE LANCET.

SIRS,—As attention has lately been drawn to the proceedings of the Central Midwives Board in connexion with the status of Irish trained midwifery nurses, I take the opportunity through your columns to announce that the points at issue between this board and the governors of the Rotunda Hospital have been amicably arranged. The Central Midwives Board has formally intimated its intention to ask the Privy Council to modify the rules so as to permit our hospital to be placed on the register of institutions whose certificate will be accepted. The settlement arrived at has been in the form of a compromise satisfactory to everyone.—I am, Sirs, yours faithfully,

E. HASTINGS TWEEDY,

Oct. 12th, 1904. Master, Rotunda Hospital.

A CASE OF SUICIDE.

To the Editors of THE LANCET.

SIRS,—A case of suicide which came under my notice recently may be of some interest from a medico-legal point of view. A man, aged 49 years, was brought into hospital in a very collapsed condition. I saw him directly on admission and was informed that he had attempted to commit suicide by cutting his throat and stabbing himself in the thorax. His wounds had been temporarily dressed by a medical man who was summoned to the house and who ordered his immediate removal to hospital. As there was still a considerable amount of bleeding from his neck wounds I removed the bandages and dressing and was immediately confronted with an alarming hæmorrhage. I secured the bleeding point which turned out to be the internal jugular vein. A few other unimportant bleeding points were also secured. This hæmorrhage had been from the right side of the neck. There was practically no hæmorrhage from the left side of the neck. The various remedies for collapse were resorted to but the patient died in about one hour after admission.

An examination after death showed injuries as follows: on the right side of the neck a jagged wound about five inches long, extending from behind the sterno-mastoid process to the lower border of the thyroid cartilage, dividing the external jugular vein, the sterno-mastoid muscles, and all the structures between it and the internal jugular vein which was also divided; the carotid artery was uninjured. On the left side of the neck was a wound four inches long dividing the external jugular vein and some superficial fibres of the sterno-mastoid. The trachea was uninjured. On examination of the thorax 11 punctures were found around the left nipple. By passing a probe seven of these were found to communicate with the cavity of the thorax. There was a considerable amount of surgical emphysema extending over the greater part of the thorax and abdomen.

A pocket-knife with a two-inch pointed blade was the weapon with which the wounds were inflicted. The injuries were of such a nature that unless the evidence given at the coroner's inquest had undoubtedly pointed to suicide one would have been inclined to think it a particularly brutal case of murder. I was unfortunately not able to obtain a photograph of the injuries.

I am, Sirs, yours faithfully,

WILLIAM E. O'HARA,
House Surgeon, Victoria Central Hospital,
Oct. 17th, 1904. Liscard, Cheshire.

KIRKES' PHYSIOLOGY.

To the Editors of THE LANCET.

SIRS,—I notice a slip in the review of my book you publish to-day. The reviewer states that the present edition is the third since Kirkes' Physiology has been in my hands. In reality it is the sixth since I assumed the editorship in 1896.

I am, Sirs, yours faithfully,

W. D. HALLIBURTON

King's College, London, Oct. 15th, 1904.

THE TREATMENT OF BLOOD POISONING BY PERCHLORIDE OF IRON.

To the Editors of THE LANCET.

SIRS,—Sir Isambard Owen's interesting case of streptococcic infection in THE LANCET of Oct. 15th, p. 1079, is of great importance as being a further confirmation of the great value of perchloride of iron in septicæmia. In the case recorded antistreptococcic serums had been tried, Roux's polyvalent serum with distinct success, yet the patient could not be said to have been out of danger till the tinctura ferri perchloridi had been administered in 30 drop doses every six hours.

For years it has been my practice in every case of blood poisoning, septicæmic, sapræmic, or local, to administer tinctura ferri perchloridi in 15 or 30 drop doses every three or four hours, and I know nothing which gives better results. It is not only in puerperal cases that it is useful but in those many cases of local and general septic infection which one meets with in consulting gynæcological practice, especially in hospital. No other preparation of iron acts in this way, the temperature immediately rising and rigors recurring if another salt of iron is substituted. Perchloride of iron, given in water, can practically always be borne; it cleans the tongue and does not upset the stomach if the bowels are kept slightly active with sulphate of magnesium. If puerperal cases were at once put on perchloride of iron instead of quinine or salicine, recovery would be more frequent and valuable time would not be lost whilst waiting for the antistreptococcic serum to arrive.

If it be true that there are 38 different strands of streptococci and that the most complex polyvalent serum now obtainable contains only six or seven of these we are still far from having at our disposal a trustworthy serum. The poor practical results of the use of serums in septicæmia make the value of perchloride of iron stand out all the more prominently, and it is for that reason that I draw special attention to Sir Isambard Owen's article.

I am, Sirs, yours faithfully,

AMAND ROUTH, M.D., F.R.C.P. Lond.

Manchester-square, W., Oct. 17th, 1904.

STATIC MACHINES AND X-RAY DERMATITIS.

To the Editors of THE LANCET.

SIRS,—I must thank Dr. A. J. Cleveland for setting me right concerning the occurrence of dermatitis as the result of the application of the x rays from a static machine. I should have said accidental or unintentional dermatitis, since it follows that if the rays produce a reaction at all, which they do, they must be capable of producing dermatitis if pushed far enough. I have used the x rays for therapeutic purposes since December, 1901, and have used both coils and static machines. I have had to deal with dermatitis occasionally, as have, I believe, most other men who use rays. In all the

instances in which I have seen it, which certainly have not been many, it has been caused by the use of a coil, and I have never been troubled by it when using a static machine, nor have I ever heard of a case caused in this way. I think that there must be some grounds for a belief which has become so general, but the relative safety or otherwise of the rays from different sources is difficult to ascertain and will be so unless or until static machines become as common a source of them as coils are.

I am, Sirs, yours faithfully,

WM. SALISBURY-SHARPE, M.D. Durh., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H.

Cleveland-terrace, W., Oct. 18th, 1904.

THE BRITISH MEDICAL BENEVOLENT FUND.

To the Editors of THE LANCET.

SIRS,—The letter from the President of the British Medical Benevolent Fund which appeared a short time since in the *Times* and to which reference was made in THE LANCET of Oct. 15th, p. 1095, was as eloquent an appeal for the funds of that worthy charity as could be made, and one can only hope that the hearts of members of the profession and of the public will be touched, with the result that the present financial difficulties will be overcome. But the question that naturally occurs to a business man is this: Why is an institution which exists for the benefit of a profession numbering over 37,000 members allowed to get into straits for money? Whilst granting that only a few medical men are very rich, still there are a very large number who make a good income, whilst the majority earn sufficient to spare, at any rate, a few shillings a year in aid of those of their less fortunate brethren who fall by the way owing to unforeseen circumstances. Looking at the matter from this practical point of view one naturally seeks for some defect which may be remedied: are the rules as to the dispensing of the funds too restrictive? is there anything in the working of the charity to alienate the sympathies of members of the profession? or is there somewhere a lacking of that business-like organisation which is as essential for the success of a charity as for the prospering of a large commercial undertaking? The answer to the first question is very easily made. So far as the rules of the fund show there is practically no restriction beyond the fact that there must be funds in hand. Apart from this, every one of the 37,800 medical men on the Register has a right to appeal to the British Medical Benevolent Fund for himself or for a *confrère* in distress. With regard to the second question, Sir William Broadbent's letter shows that no objection can be raised as regards the working of the fund. The annuitants are appointed and the grants are made without the delay and cost of an election, entirely on the merits of the applicants, and according to the urgency of the cases which go before the committee at their monthly meetings. This is as ideal a form of administering charitable funds as could be imagined—no waiting, no publicity, and the grants are not given in one sum (in which case they would frequently find their way into the hands of the landlord for arrears of rent), but they are paid in monthly instalments as a rule in order that the maximum amount of good may be done in every case. We therefore come to the last question: Is there something wanting from the point of view of businesslike organisation? And here I will let the President answer in his own words. "There are no buildings to maintain, no office expenses, no salaried officials." Here, I venture to suggest, is the key to the situation. However zealous honorary officials may be in their work (and having known successive secretaries of this fund I can testify to the whole-hearted way in which they have worked), a charitable institution depending upon honorary work cannot reach the degree of success which is attained by those which have a well-paid secretary who devotes his whole time to the interests of the charity. And is there anything surprising in this? A secretary who can command a good salary has undergone a long apprenticeship in the difficult art of getting money and he has acquired those powers of organisation which will enable him to obtain contributions in spite of passing difficulties, such as shortness of money, wars, and the numerous other reasons offered by charities to account for the decrease in contributions. To repeat, the obtaining of contributions is an art and none know this better than the committees of our leading charitable institutions who do not hesitate to give a good salary to a thoroughly qualified man, for they know full well that the money will be repaid ten-fold in the return of donations, subscriptions, and legacies.

Let us take a glance at the income of the fund for the last ten years, or, to be more correct, from 1893 to 1902, as I have not a later copy of the report by me. In 1902 the total of donations and subscriptions was exactly the same as in the year 1893, so there is evidently no progress in this department, and in some years the total has fallen as low as £1291 and £1367, whilst it has been as high as £1883 and £1791. As regards the grant department, the sum of £1866 was disbursed in 1893 and £1503 in 1902, being a decrease of £363. As to the total number of contributors I have not counted these but believe a very fair estimate would be 1350. As this number includes all contributors, medical men, ladies, and those not belonging to the profession, I presume we may fairly say that not more than 1000 medical men out of the 37,000 on the Medical Register show sufficient interest in this invaluable institution to contribute to its funds. Next as to the honorary local secretaries—those channels through which funds flow so regularly into the coffers of a charity. There are under 100 of these, including some representing the hospitals and schools in London. With the organising powers of a good paid secretary these officials ought to be increased to 300 or 400 and if the fact were made clear that subscriptions of half-a-crown or 5*s.* were welcome there would be a great increase in the receipts. Then honorary local secretaries should be urged to obtain contributions from those outside the profession, for most persons agree that the payment of the doctor's bill does not anything like repay him for the anxiety, time, and trouble bestowed, and no more fitting way of showing gratitude can be imagined than contributing to an institution which exists for the purpose of assisting medical men and their families when in need of help.

May I lay stress upon the fact that I do not wish to make any reflection upon the existing honorary officials? In fact, they could continue to render their invaluable help after the appointment of a paid official, thus leaving him more time to devote to organising. But I am convinced that such appeals as the one recently issued by the President of the fund would not have to be made and 23 applicants would not have to be refused help owing to lack of funds if an experienced secretary were appointed. Business methods would then place the financial condition of the fund on a sound basis, and there would be an increasing amount available for distribution year by year.

I am, Sirs, yours faithfully,

A LAYMAN.

*** It is well sometimes that we should have the opportunity of seeing ourselves "as others see us" and as an appeal has been made to the public for help we willingly extend to "A Layman" the hospitality of our columns. Too much praise, in our opinion, cannot be given to the honorary officials.—ED. L.

THE BOSTON MUNICIPAL BACTERIOLOGICAL LABORATORY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Boston, Mass., U.S.A., Oct. 4th.

SOME of the most original features of sanitary administration as established in the city of Boston are to be found at the bacteriological laboratory. There a public service has been organised which in minutiæ of detail is well worth studying. While the first object is of course to prevent the spread of disease it must also greatly facilitate the work of the general practitioner and relieve him of a heavy responsibility. The laboratory, strange to say, is situated in a flat in one of the best residential districts of Boston. Doubtless efficient precautions are taken, but even if the pathogenic germs that are brought here every day are so well protected that no accident can happen with them, still the keeping of animals for experiments in a residential flat does not seem quite right. Some outbuilding near a medical school or hospital, and standing on its own grounds, is

generally chosen for a bacteriological institute. At Constantinople, for instance, the Sultan managed things better. There the Turkish Pasteur Institute occupies a beautiful site all by itself, surrounded only by trees and gardens. If animals are kept here the noise they make does not disturb neighbours and should a bottle accidentally fall its contents, however dangerous, would not imperil other than experts who should be well able to take care of themselves. However, in spite of the immensity of the American continent there seems to be a lack of space and therefore it is not always possible to get exactly the sort of premises that are most desirable.

On entering the flat which serves as the bacteriological laboratory of the Boston board of health the visitor is stopped by a counter with clerks behind and the general aspect is that of an insurance or merchant's office or some other business place. There are the desks, the clerks, and even string and paper hanging from the wall with patent devices for cutting off promptly and exactly the piece of the size required for wrapping up the samples. Only on inquiry is it discovered that the samples in question are the sputum of patients or swabs that have been taken from throats thought to be affected with diphtheria. As far as appearances go the neat little cardboard boxes might contain the last new hair wash or a specimen bottle of ointment warranted to cure anything. On the counter which acts as a barrier to keep back the over-curious there is a lid which when lifted discloses a well-like compartment full of different sized boxes of this description. Young men rush in at all times of the day. They deposit on the counter a few of these boxes, open the lid, take out more boxes, pack them up neatly with the string and paper provided, hastily make a brief entry in a book that lies open ready at hand, and then probably hasten away, often without exchanging either word or salutation. It might be a corn merchant's offices with clerks and messengers running in and out from 'Change to fetch samples. It is only on inquiry that the real facts begin to reveal themselves, so well has the appearance of "business" been maintained. The hasty youths have not come from any market or 'change but they are the shop assistants or messengers in the employ of dispensing druggists. The samples they bring are of blood, sputum, pus, &c., and they take away boxes containing all that is necessary for the collection of more specimens. There are in Boston 47 dispensing druggists who have depôts of these little cardboard boxes. Any medical practitioner can receive from these druggists gratuitously one or more of these boxes. In them he places the specimen taken from his patient and returns the same to the druggist who then forwards it by messenger and by hand to the bacteriological laboratory. The specimen is forthwith examined and a postcard answer is immediately sent printed in red if pathogenic germs have been found and in black if they have not. These are called positive and negative postcards. At the same time, when it is a case of infectious disease then a second card is sent to the board of health and thus the compulsory notification is effected. Formerly the messengers were paid by the municipality for every sample they took to the laboratory but this proved too expensive; now they only receive 20 cents, or 10*d*., per trip however many samples they may take. To the medical practitioner this system means a great saving of time, for he has only to go to the nearest dispensing druggist. The medical practitioner does not receive any fee for notifying cases of infectious disease, but as all necessary bacteriological research is done for him gratuitously and expeditiously this it is thought amounts to quite as much in the saving of time as the fees given in England. Also, it gives a better guarantee to the public because, as the examination can be done, and done thoroughly, without cost to the patient or his medical attendant, there is no temptation to defer such investigation and a better prospect is secured of nipping the evil in the bud.

The laboratory is situated in Boylston Chambers, Boylston-street, Room 501, nearly opposite the Harvard Medical School, the art galleries, and above all the public library which, with its painting and mural decorations, constitutes the apple of the eye for every true Bostonian. Specimens are received here from 8.30 A.M. to 6 P.M. every day except holidays. But there is an ingenious device by which samples may be delivered even after the laboratory is closed. A special door has been fitted out. Here there is an aperture for letters; no sample box can pass through. Then there is a square opening through which the box containing the swabs used for diphtheria alone can enter. These fall into an incubator so that the process of incubation commences the moment the sample is delivered and while the attendants of the laboratory are away. In this manner no time is lost. On the other hand the boxes for specimens of blood in cases of suspected typhoid fever can only be introduced through another and irregularly shaped opening. Thus the sorting of the samples is rendered indispensable, otherwise they cannot be passed through the door. This very useful and practical contrivance is considered unique. I am not aware that it exists in any other laboratory and it is thought to be a pure Bostonian invention. The outfits, as they are called, for diphtheria consist of a serum tube, containing two swabs, and a card for the medical practitioner to fill up with the details of the case. Also, there is a paper giving directions. The card-board box containing these is carefully disinfected with formaldehyde gas each time it is sent out. Before using such a box it is necessary to look at the serum and if dry or liquefied it must be sent back to the laboratory and another taken in its stead. One swab is intended for the nose and the other for the throat, and both are inoculated in the same serum tube. If separate diagnosis is desired then two outfits must be used. The directions say that "when a rapid or swab examination for diagnosis is contemplated it is well to rub the swab on the suspected area in the nose or throat a second time *after* the inoculation of the serum. The swab is then returned directly to the swab tube. This procedure increases the reliability of the swab results by increasing the amount of material made available for examination."

These are placed in an incubator over night at 37° C. or else worn in the night garment of the patient and thus incubated at body temperature. This latter mode of procedure hails, it appears, from Chicago. But there is not merely the question of ascertaining the presence of disease, there is also the all-important matter of determining when the patient ceases to be a danger to his neighbours. For this purpose the board of health required that cultures from both the throat and the nose should be examined with negative results and this not once but on two consecutive occasions. If only the second examination reveals the presence of the diphtheria bacillus then the first examination does not count and two further negative examinations are necessary before the patient can be released.

For tuberculosis the outfit consists of a small, stumpy, square, wide-mouthed bottle. The mouth is wide enough for the patient to spit into with ease and this he is required to do. Inside the bottle there is a small quantity of a 5 per cent. carbolic acid solution. The acid not only kills the bacilli but acts as a mordant and improves their staining qualities. When the box containing this bottle reaches the laboratory, it is opened and everything is exposed to the vapour of formalin all night and in a tightly closed receptacle so as to kill any bacilli that may have fallen outside the bottle during the process of collecting the specimen of sputum. It is therefore on the morning following the day of the receipt of the specimen that it is examined. If any doubt exists as to the result of the examination it may be necessary in some cases to inoculate guinea-pigs and there are always some of these animals ready at hand in the laboratory.

For typhoid fever the specimens can be, and are, sent by post. The outfit consists of two tongue-shaped pieces of aluminium foil on which the blood is dropped and smeared and dried by rubbing these two little pieces of metal together. A small copper-wire loop is used to collect the one drop of blood and to place it on the foil. The accompanying formula with directions is filled up by the medical attendant, the whole is elaborately folded up and covered over and then placed in a manilla envelope and posted to the laboratory. For malaria a specimen of blood also is collected, but in regard to dysentery and summer diarrhœa this system has not proved satisfactory. A pipette is now being employed so as to obtain a larger quantity of blood. By these methods it is hoped that valuable aid will be obtained in the diagnosis of intestinal disease.

Altogether free examinations are made at this laboratory for tuberculosis, diphtheria, typhoid fever, influenza, and other bacterial diseases and malaria, if the specimen is sent by a qualified practitioner. For veterinary surgeons free examinations are made in regard to glanders and rabies. In addition to this work of detecting and proving the presence of disease—and the number of samples sent has

steadily increased—many examinations have recently been made of the bacteria contained in the milk supplied to the town of Boston. As many as 600 samples of milk have been bacteriologically examined in the course of a single month.

It will be seen, therefore, that this municipal bacteriological institute has been very active and is doing good work. Three specially trained men, two medical practitioners and a chemist, an office boy, and a clerk are employed at the laboratory, yet the cost to the municipality only amounts to £2200 annually. There are but few institutions that have rendered so much service at so small an expense.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

University Notes.

THE annual conversazione, which was held on the evening of Oct. 3rd, was unusually well attended and the large audience listened with great interest to the address which was delivered by Dr. P. H. Pye-Smith, vice-chancellor of the University of London. After the delivery of the address refreshments were served and a number of exhibitions of various kinds were open to inspection.—Two former students of the university, who were subsequently teachers therein, have been appointed to chairs in the University of Manitoba. Dr. T. Swale Vincent, who graduated at the University of London after pursuing his medical studies at Mason College, was for some time demonstrator in the physiological department. His work in connexion with the function of the suprarenal capsules is well known. He has been appointed to the chair of physiology in the University of Manitoba. To the chair of botany (with geology) in the same University has been appointed Mr. A. H. R. Buller, Ph.D. and D.Sc. Birmingham. Dr. Buller was also a student of Mason College and subsequently studied in Germany where he made a specialty of plant diseases. On his return from Germany he was appointed demonstrator in the botanical department of the University. This post, which becomes vacant on account of his new appointment, has been given to Mr. A. J. Ewart, M.A., D.Sc. Lond., Ph.D. Leipsic. While speaking of resignations I may note that Professor W. MacNeile Dixon, Litt.D., the occupant of the chair of English language and literature and dean of the Faculty of Arts, has left the city, he having been appointed to the same chair in the University of Glasgow. Though unconnected with the medical profession himself Professor Dixon had many friends amongst its ranks and being an assiduous cultivator of the game of golf had frequent bouts with the numerous members of our profession who are also addicted to that game.—The new club-house for the male students of the University is now something more than a thing to be talked about, for work has actually been commenced upon the building and the sanguine hope that it may be in full operation by the commencement of the next winter session. The preliminary details have been in the hands of a committee which has Dr. W. Wright, the popular lecturer on osteology, as its chairman and this committee has been advising Alderman Beale, the vice-chancellor of the University, to whose initiative and energy the club house will owe its origin.

Pollution of the River Tame: Action against Oldbury Council.

A very important proceeding which the Staffordshire county council brought against the Oldbury district council under the Local Government Act, 1888, and the Rivers Pollution Prevention Acts, 1876 and 1893, was heard in part a few days ago. The plaint set forth that the defendants at various points within their districts caused to fall or to flow and knowingly permitted solid and liquid sewage matter to be carried into a stream being a tributary of the river Tame in such a state as to cause the pollution of that river. An order was therefore applied for under the Rivers Pollution Prevention Act requiring the defendants to abstain from the commission of the offence. Counsel on behalf of the plaintiffs explained that the sewage was discharged into a tributary of the Tame, which tributary flowed through a populous district into an area dealt with by the Birmingham Tame and Rea Board. For a considerable time the governing bodies which have dealt with the county council of Staffordshire and the Birmingham Tame and Rea Board had done a great deal towards the purification of the Tame and both of them had for years been doing everything in their power to prevent the pollution of that river. Some of the authorities had dealt with their sewage in a proper manner but others had failed to do so and amongst these was the Oldbury district council which, in spite of all the pressure which had been brought to bear upon it, had done nothing and was still a very serious offender in respect of that particular stream. Oldbury had a population of about 25,000 and sewage from about 22,000 was conveyed to the Oldbury sewage works. It was contended that the method of treatment adopted at Oldbury was unsatisfactory and that the works were of insufficient capacity to deal with the large volume of sewage. Moreover, there were exceptional difficulties owing to the presence in the sewers and at the works of chemical waste which made it very hard to deal with the sewage of the district. There were 40,000 gallons per diem of chemical waste running into the sewers which was not treated and the presence of which rendered the works at Oldbury incapable of dealing with the ordinary sewage of the locality. The result was that there was flowing from those works into the river Tame a filthy effluent which was a nuisance to the district through which it passed for a considerable distance. The chemical waste which escaped into the river and its tributaries was destructive to fish life, although the water in other parts away from the Oldbury district would support fish. A correspondence between the two parties was then read, in the course of which a letter from the clerk to the Oldbury district council stated that the pollution was caused by trade waste from manufactories and particularly from the works of Messrs. Chance and Hunt. Further, he added, to require this firm to cease from discharging waste liquid into the sewer would mean the stoppage of their works and would be of very serious consequence to Oldbury, as they were amongst the largest ratepayers. He also contended that both above and below the place where the Oldbury effluent entered the stream there were pollutions. The Local Government Board had declined to interfere between the two bodies. Counsel claimed that the inquiry had nothing to do with the difficulties of Messrs. Chance and Hunt who, as a business concern, were apparently creating a nuisance and should be restrained by the district council. It was for the court to find out what was the source of the pollution and if he proved that it came from the Oldbury sewers then he was entitled to an order to restrain any further pollution. They could not consider the position of Messrs. Chance and Hunt in the matter but they were only entitled to consider how far the local authority, in consequence of that position, was reasonably entitled to some mitigation of the severity of the order. Dr. George Reid, county medical officer of health, gave evidence and stated that he had on several occasions visited the Oldbury sewage works and from his observation of the state of the effluent prior to 1903 it was very foul and had a very bad odour. In February, 1903, an inquiry was held at Oldbury into an application for a loan to extend the sewers so as to take in the sewage of a larger population, but this, in his opinion, would only increase the evil. He opposed the scheme on that account, because it would increase the volume of sewage going into the outfall and would consequently make the works worse than before. He did not know that anything was done to enlarge or to improve the purification works. Dr. Reid gave a full account of the system at work at Oldbury and said that the contact beds were insufficient, having regard to the daily flow of sewage at the works. These beds were 56 per cent. below the requirements of the Local Government Board, which he did not think were over the mark. After hearing Dr. Reid's evidence the further consideration of the case was postponed until the end of November, when I shall hope to acquaint your readers with the termination of the case.

Oct. 17th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Department of Anatomy: A Tribute to the late Sir William Banks.

IN the course of his opening lecture delivered on Oct. 4th Professor A. M. Paterson commented on what he described as "two events of importance in the annals of the anatomical department." In the first place, he said, they enjoyed the privilege of occupation of their completed new buildings and the University now possessed an anatomical institute

which would bear comparison with the most modern and best equipped in the country. It had been built by the generous donations of Liverpool citizens and Liverpool students now possessed every facility and adequate provision for the study of anatomy. It lay with them to produce work that would justify the confidence that had been placed in them and the gift with which they had been intrusted. They possessed rooms for study and research, an airy and well-lighted museum and dissecting room, commodious theatres, and the beginnings of an anatomical library. The library needed most support and development now in order to provide the modern books and journals by which higher study and investigations could be encouraged and advanced. They had to mourn the absence of the late Sir William Banks, whose life-work was so closely associated with this department. At the end of July he cheerily bade his friends good-bye and now, alas, he had gone for ever. He could not let the opportunity pass without recalling some of the things for which they were collectively indebted to him. Some of them might remember the delightful sketch he gave at the University Anatomical Society last winter of his two great anatomical teachers, John Goodsir of Edinburgh and Allan Thomson of Glasgow. They recalled the pleasure he took in addressing them for the last time in his own old anatomical theatre and the loving memory he displayed for all his anatomical work in Edinburgh, Glasgow, and Liverpool. Sir William Banks was the real founder of the Liverpool School of Anatomy. When University College was established he was the first professor of anatomy and he only resigned the chair in 1894 when the Derby professorship was founded and endowed by the present Earl of Derby. For all time the University and the city will preserve in honoured memory the name of William Mitchell Banks.

Liverpool Stanley Hospital: Opening of a New Operating Theatre: Extension of the Out-patient Department.

The urgent need of a new operating theatre at the Stanley Hospital had been long felt and in May last, through the munificence of an anonymous donor of £1000, the committee was enabled to invite tenders for its construction. At the same time it was decided to extend the out-patient department. On Oct. 7th the new extensions were formally opened by the Countess of Derby who was accompanied by the Earl of Derby. The gathering also included the Lord Mayor and the Lady Mayoress, prominent members of the medical profession, and a large number of ladies and gentlemen interested in the institution. An inspection having been made of the new additions to the hospital the company assembled in the out-patient department. The Lord Mayor, who presided, said that the Stanley Hospital had always had some association with the Stanley family and he believed that it was Lord Derby's father who originally gave the land upon which the hospital had been erected. The hospital carried on its work in the midst of a crowded and poor population and in close proximity to the docks and other large works where accidents were constantly occurring, and while, on the one hand, there were great demands made on the institution, on the other hand there was no wealthy population to support it. The need for the extension of the out-patient department would be obvious when he mentioned that, up to the end of September last, there were nearly 50,000 attendances, which would mean 70,000 attendances in the year. An anonymous donor had provided the funds for the building of the new theatre and another gentleman who was very much interested in the work of the hospital had paid for the new extension. The Countess of Derby then formally declared the new additions open and expressed the hope that they would alleviate the sufferings of the poor and advance the science of surgery. The Lord Mayor presented her ladyship with a gold key on behalf of the committee. Lord Derby said that he had great pleasure in sending a cheque to the treasurer for £500 in order to provide anything which might be lacking with regard to the work of the new operating theatre. The theatre is placed so as to obtain the advantage of a steady east and north light and to attain the greatest amount of quiet it is detached from the hospital corridors. The installation of the electric light is very complete, all switches being made damp-proof. The theatre walls and ceiling are finished in Parian cement on a Portland cement ground and are painted with Calley's Torbay paint. All basins and sinks are fitted throughout with knee-action taps. The pavement is terrazzo. The heating is on the low-pressure system. An exclusive hot-water service is heated by steam. The ventilation is by direct inlets (the air being filtered through fine sieves) and a large extraction shaft, the latter being worked by an electric fan. The preparation room adjoins the theatre and opens from it; it contains a large steriliser for dressings, another for hot water, and a third for instruments. The instrument case is of glass and is conveniently fixed in the wall between the theatre and the preparation room. The extension to the out-patient department comprises a surgeon's consulting room, two dressing rooms (male and female), and a theatre for minor operations, together with two adjoining recovery-rooms.

Annual Church Service for the Medical Profession.

The annual service arranged for the members of the medical profession of Liverpool and environs took place at St. Luke's church on Oct. 9th. The Lord Mayor and the Lady Mayoress were present and there was a numerous attendance. The sermon was preached by the Bishop of Clogher. The service was conducted by the Bishop of Liverpool and Archdeacon Madden. The collection, which will be devoted to the Medical Benevolent Fund, realised £24.

Housing of the Poor and Demolition of Insanitary Property.

Dealing with the past year's work of the Liverpool corporation housing committee on Oct. 14th the chairman said its operations had been constructive and not destructive, but demolition would shortly proceed as the grand jury had presented 372 houses as being unfit for human habitation. The houses presented for demolition contained a population of 1325 persons. Considerable progress had been made in acquiring land in different areas. The whole of the Upper Mann-street area had been acquired by agreement which was almost unprecedented for an area of that size. In Hornby-street area the committee had acquired land to enable it to proceed with the erection of buildings on the second section. Regarding the construction part of the committee's work there had been opened during the year Hill-street dwellings, Upper Stanhope-street dwellings, the Gildart's gardens area dwellings, and within the last few days the first portion of the Hornby-street dwellings had been taken over from the contractors. The further number of dwellings available for occupation during the year was 394, comprising 70 one-roomed dwellings, 84 two-roomed dwellings, 186 three-roomed dwellings, and 54 four-roomed dwellings. In addition other areas containing considerable provision for housing the poor would be ready for occupation within a short time. No other city or town in the United Kingdom could show a better progress in the work of erecting houses for the dispossessed.

Sanitary Inspectors' Association.

A meeting of the north-western centre of the Sanitary Inspectors' Association was held on Oct. 15th at the University of Liverpool. 52 members attended from Liverpool, Manchester, Bury, Rochdale, and other towns in the centre. Upon arrival in the afternoon they were received by Professor Rubert W. Boyce, F.R.S., who in a short speech cordially welcomed them. The party was then conducted over the Johnston laboratories of veterinary medicine, cancer research, and bio-chemistry, the Liverpool School of Tropical Medicine, and the laboratories of pathology, physiology, bacteriology, and municipal bacteriology. A meeting of the council was afterwards held, 20 new members being elected. Subsequently a general meeting was held, Mr. John T. Quinton (chairman of the centre) presiding. Mr. F. C. Lewis (University of Liverpool) read a paper on Conferred and Natural Resistance to Disease in the Animal Body. His remarks, which were of a technical description, were illustrated by lantern microscope preparations and specimens of the toxins and antitoxins. It was announced that Mr. F. Vacher, the medical officer of health of the Cheshire county council (the President), had given his award for the prizes in connexion with the Northern Sanitary Association for papers read as follows: Mr. F. C. Lewis (Liverpool), Mr. C. W. Laskey (Eccles), Mr. F. J. Rowe (Manchester), Mr. J. Fallons (Liverpool), and Mr. J. Peers (Wolverhampton). It has been arranged that the annual dinner of the association will be held on Dec. 3rd in Liverpool.

New Nurses' Home at Rochdale.

The Countess of Derby opened a new nurses' home at Rochdale on Oct. 15th, built in memory of the late Queen,

The nurses' home was provided by the inhabitants of Rochdale as a result of a town's meeting convened by the mayor on July, 1901. The new home, which provides accommodation for six nurses, stands on an excellent site (formerly occupied by the grammar school). This is on the hill overlooking the town hall, which gives an uninterrupted view of the park and town square, the main front facing the south. The building is faced with Huncoat plastic bricks, relieved with polished stone dressings from Stancliffe quarry, Darley Dale. The roofs are tiled. It is fitted for electric lighting. The entrance hall and a portion of the corridor on the ground floor have oakwood block flooring.

Oct. 18th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

University College, Cardiff.

THE twenty-first anniversary of the establishment of the University College of South Wales and Monmouthshire was celebrated at Cardiff on Oct. 14th when nearly 3000 persons, all of whom are now, or have been at one time, connected with the College, met together in the Park Hall. The first of the three constituent colleges of the University of Wales was established in Aberystwith in 1872 and it is remarkable that until 1882 this College was supported entirely by voluntary contributions which averaged £6000 yearly. The Cardiff College was opened in 1883 and that at Bangor in the year following. All these colleges now receive a Government grant of £4000 annually. The first president of the Cardiff College was the late Lord Aberdare and he was followed by the late Lord Bute, the late Dean Vaughan, Lord Tredegar, and the present President, Sir Alfred Thomas, M.P. During the first seven years of its existence the number of students at Cardiff varied in each year but very little, averaging 150. In the second seven years this average had become 330 and in the last seven years it had risen to 577, the actual number this session being 651. In 1893 a medical department was added to the College and since that date 68 medical students have become fully qualified. Remarkable as the growth of the College has been it is all the more so on account of the unsuitability of the buildings which are available for the use of the students. In the first instance, the old infirmary, a three-storey stone building, was utilised and this has been added to from time to time by the erection, in the adjoining grounds, of wooden structures, inclosing class rooms, lecture theatres, &c. This great drawback to the progress of the College will, however, soon cease to exist. The Cardiff corporation has presented to the governors of the College a site for a college in Cathays Park, in proximity to the new town hall and law courts, and has contributed £10,000 to a building fund which has also received contributions of £20,000 from the Government and £15,000 from the Worshipful Company of Drapers. This fund now stands at nearly £80,000 and includes a recently announced donation of £5000 from Lord Tredegar. The foundation-stone of the new college will probably be laid early in the new year.

The Tramp Question.

There are few meetings of boards of guardians at which an increase in the number of tramps relieved is not reported. In the Swindon and Highmore union 318 vagrants are stated to have been relieved during the fortnight ending Oct. 5th, compared with 155 during the corresponding period of last year. Mr. E. B. Wethered, Poor-law inspector of the Local Government Board, has recently advised the Swindon and Gloucester boards to carry out strictly the regulations of the Local Government Board as to searching and bathing every tramp who applies for admission to the vagrant wards of their workhouses. He quoted from his annual report where he gave the results of a better supervision of tramps at the new workhouse at Wolverhampton, where bathing and searching are now thoroughly carried out no matter at what time of night tramps may be admitted. In the last quarter of 1902 there were admitted to the old Wolverhampton workhouse 4094 vagrants but during the same period of 1903 under the new conditions only 1326 were admitted. In the report referred to Mr. Wethered expresses the opinion that some alteration is necessary in the diet given to vagrants. He thinks that the meagre diet of bread and cheese which is given in some unions does not diminish vagrancy but that it tends to demoralise.

Tredegar Cottage Hospital.

A cottage hospital has been opened at Tredegar, Monmouthshire, where there is a working-class population of about 20,000 persons. The establishment of this institution was rendered possible through the gift by Lord Tredegar of a site and of contributions from the Tredegar Coal and Iron Company which gave £250 towards the building fund and promised £25 annually towards the cost of maintenance. To the latter the workmen have undertaken to contribute one halfpenny per week per head. There is accommodation in the hospital for 11 beds and a feature in the building is a very well-designed operating theatre which has connected with it a separate anæsthetising room.

Death of Mr. John Webber.

Mr. John Webber of Mutley Park-terrace, Plymouth, died at Park View, Ilfracombe, on Oct. 10th, in his eighty-third year. The deceased, who belonged to an old Somerset family, became qualified as L.S.A. in 1845 and was admitted M.R.C.S. Eng. in 1846. He practised for many years at Crewkerne, Somerset, and on retiring from active work took up his residence at Plymouth, where he was held in high esteem. He leaves one son, Dr. H. W. Webber, who is on the staff of the South Devon and East Cornwall Hospital.

Oct. 18th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Academy of Medicine in Ireland.

THE annual meeting of the Royal Academy of Medicine in Ireland and the election of officers for the ensuing year took place on Oct. 14th at the Royal College of Physicians. There were three candidates for the vacant position of general secretary and Dr. James Craig was elected to fill that important office. Sir Thornley Stoker was elected president and there were but few changes in the lists of members of councils. In the section of State Medicine Professor Fuchs of Vienna was elected an honorary fellow.

Irish Poor-law Medical Service.

The Irish Medical Association has been doing all that it can in the interests of the Irish Poor-law medical officers, but as Dr. M. McHugh stated in his recent address at St. Vincent's Hospital the Local Government Board had thwarted any attempts made by the county councils to improve their position. Surgeon-General G. J. H. Evatt, C.B., has recently arrived in Dublin in compliance with an invitation from the association and is about to hold consultations with the various branches throughout the country and to address public meetings on the present position of the Irish Poor-law medical service and its relation to the welfare of the people.

Dublin Sanitary Association.

The council of the Dublin Sanitary Association met at the offices of the association, 42, Dame-street, on Oct. 13th. The council reiterated its advice of last month in reference to the continued annoyance and danger from dust in the streets of the city. The following motion was adopted:—

That the council of the Dublin Sanitary Association, whilst fully recognising the difficulty encountered by the corporation owing to the state of the Stillorgan reservoir and realising the gravity of a possible shortage of water for domestic purposes in the metropolis, are still of opinion that the streets should be watered in dry weather and consider that the engineering and cleansing committees should have endeavoured to arrange for a supply of water for the watering carts from the Grand and Royal canals, as was done in the continued drought of the year 1893.

Jervis-street Hospital, Dublin.

At a meeting of the governors and guardians of Jervis-street Hospital, held on Oct. 17th, Mr. Matthew Burke Savage was unanimously elected physician in room of Dr. William J. Martin, resigned, and Mr. J. F. L. Keegan, surgeon to the hospital, in place of the late Dr. J. J. Cranny.

The Infectious Diseases' Notification Act.

At the Newtownards petty sessions on Oct. 13th a woman from whose house in that town a case of infectious disease had been removed on Sept. 11th to the hospital was fined 10*s.* and 1*s.* 6*d.* costs for not having notified the occurrence. Mr. R. C. Parke was also summoned and fined 10*s.* and 1*s.* 6*d.* costs for not having notified the same case. He said that

as soon as he knew that the case was an infectious one he had it removed to the hospital immediately, that was on Sunday, Sept. 11th, and as he regarded Sunday as a *dies non* he sent a certificate to the medical health officer the next day, but as the resident magistrate said that Mr. Parke was in fault in not reporting the matter earlier on Monday (the certificate was sent in the evening) he was fined. Newtownards adopted the Notification of Infectious Diseases Act in 1903 and during the past couple of months it has had a visitation of scarlet fever (the case in the present action, a child, had this disease), necessitating the closing of the public schools. According to the Act it is incumbent upon the relatives and the medical man to notify *forthwith* when a case of infectious disease is diagnosed.

County Antrim Infirmary.

Mrs. John D. Barbour has given £200 in trust to be known as the "John Milne and Elizabeth Sarah Milne Memorial," and Miss H. R. Barbour has given £150 to be known as the "John D. Barbour Memorial," the incomes of both of which are to be paid to the treasurer of the County Antrim Infirmary so long as the institution is situated within the town of Lisburn.

Queen's College, Belfast.

The vacancy in the lectureship on ophthalmology and otology (caused through the death of Dr. W. A. McKeown) is advertised in the local papers. The gift is with the college council and applications must be made not later than Oct. 29th.

Rainfall in Ulster in September.

3·89 inches of rain fell on 18 days in September, making the total amount for the year 29·57 inches, which is about the average. The main fall of rain in September was on six days (3·36 inches), the rest of the month being fine.

Professor J. Lorrain Smith.

At a meeting of Professor Lorrain Smith's friends and colleagues, held in Queen's College, Belfast, on Oct. 17th, it was decided on his leaving Belfast to pay him the compliment of a public dinner which is to be held on Nov. 3rd.

Oct. 18th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Relations between the Circulation of the Blood and the Tactile Sensibility.

AT a meeting of the Academy of Sciences held on Sept. 11th M. Vaschide said that for the purpose of investigating the relations existing between the circulation of the blood and the tactile sensibility he had made observations both on the human subject and on the lower animals. He came to the conclusion that the relations in question were very close and that the tactile sensibility underwent important variations according as there was a deficiency of blood-supply or a congestion. A change in the position of a limb or of the body might give rise to appreciable and even measurable sensory disturbances. In neuropathic subjects these relations had an important effect in bringing about the sensory and motor troubles on which the morbid condition mainly depended.

M. Doyen's Serum Treatment of Cancer.

An action brought by a wealthy American against the celebrated French surgeon, M. Doyen, will soon come before the First Chamber of the Tribunal Civil. Some of the facts are as follows. In the end of last April Mr. Crocker arrived in Paris, accompanied by his wife who was suffering from cancer which some American medical men had declared to be incurable. In Paris Mr. Crocker consulted M. Doyen who had just announced that he had discovered a remedy for cancer. The fees were fixed at 100,000 francs (£4000) which were paid at the end of a fortnight's treatment. The state of the patient became worse, M. Doyen was requested to discontinue his visits, and some days afterwards Mr. and Mrs. Crocker sailed for America. Mrs. Crocker died two months subsequently. On the ground that the injections of serum made his wife so much worse that they had to be stopped Mr. Crocker brought an action for the return to himself of the 100,000 francs which he had paid as fees to M. Doyen. The latter replied that the interruption of the treatment was in consequence of a request made by the patient's husband and that he had in his possession a letter from Mr. Crocker mentioning that word would be sent to him (M. Doyen) if Mrs. Crocker became a little better and strong enough to bear the injections once more. M. Doyen added that it was his constant practice to have his fees paid in advance. The affair has caused quite a sensation in French medical circles and before the holding of the French Surgical Congress, which opened on Oct. 17th, it was feared that the congress would be the scene of a tumult, owing to the strong party feeling of many who were certain to be present, and also to the fact that some surgeons of the first rank had with much frankness expressed their disapproval of M. Doyen's proceedings. The circumstances will be described at full length later. At present it will suffice to say that at the congress M. Doyen opened a discussion on the treatment of cancer and in the course of his remarks denied that his serum was a secret preparation. M. Poirier then severely criticised M. Doyen who replied by inviting M. Poirier to examine the methods adopted in his (M. Doyen's) laboratory. After much vehement argumentation the proceedings terminated by the meeting giving cheers for M. Doyen and the students escorting him to his carriage.

Oblique Fracture of the Upper End of the Humerus.

At a meeting of the Surgical Society held on Oct. 5th M. Picqué read, for M. Gandier, an account of the case of a youth, aged 14 years, who had fallen on his shoulder from a height of six feet. In addition to ecchymosis of the tissues there was fracture of the upper end of the humerus at the level of the surgical neck; the lower fragment projected prominently forwards and inwards. Attempted reduction under chloroform being ineffectual, M. Gandier exposed the ends of the bones and sutured them. Recovery was uneventful.

Treatment of Hypospadias of the Anterior Urethra.

At the same meeting M. Picqué read another communication received from M. Gandier relative to a new operation for the treatment of hypospadias of the anterior urethra (*hypospadias balanique*), imitated from König's operation and consisting in a restoration of the anterior part of the urethra by means of two lateral muco-cutaneous flaps taken from the prepuce. These flaps are folded so as to present on one side a mucous surface which serves for the repair of the urethral canal and on the other side a cutaneous surface which takes the place of the antero-inferior aspect of the penis.

Oct. 18th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Medical Association.

FOR the first time in its 37 years of history the Canadian Medical Association convened in the province of British Columbia, nearly 3000 miles from the leading medical centres of Montreal and Toronto. The annual meeting this year took place in the thriving, growing city of Vancouver, a city of 40,000 people, the site of which 16 years ago was but a wild, virgin forest. Every province of the Dominion of Canada was represented, nearly a dozen travelling 4000 miles and coming from the maritime provinces of Nova Scotia, Prince Edward Island, and New Brunswick. Considering the distance which one had to travel from these provinces and Ontario and Quebec, the fact that the attendance reached nearly 300 medical practitioners, making it the third largest meeting in the history of Canada's national medical organisation, proves beyond the shadow of a doubt that the Canadian Medical Association is becoming more and more popular each year with the Canadian medical profession. The opening session took place on August 23rd and the meeting continued for the three following days. Dr. Simon J. Tunstall of Vancouver was in the chair as President and assisting him were the general secretary, Dr. George Elliott of Toronto, and Dr. W. D. Brydone Jack of Vancouver, the local secretary for British Columbia for 1903-04. Amongst the guests who were introduced were Mr. A. W. Mayo Robson, Dr. C. W. McGillivray of Edinburgh, Professor W. Japp Sinclair of the Victoria University of Manchester, Professor E. C. Dudley of Chicago, U.S.A., Dr. C. H. Mayo of Rochester, Minnesota, U.S.A., and Dr. Kenneth McKenzie of Portland,

Oregon, U.S.A. The general secretary submitted his annual report which, after dealing with the growth in attendance at the recent annual meetings, recommended that the question of reorganisation should be taken up on the lines of the British Medical and American Medical Associations. The Mayor of Vancouver, Dr. W. J. McGuigan, on behalf of the citizens and profession of Vancouver, then delivered the address of welcome. Dr. R. E. McKechnie of Vancouver submitted a motion calling upon the Provincial Governments of the Dominion of Canada to establish sanatoriums in the different provinces for the treatment of cases of tuberculosis. This was passed unanimously. Dr. C. J. Fagan of Victoria, British Columbia, then contributed a paper on Patent Medicines. Following the reading of his paper Dr. Fagan, who is the medical health officer of British Columbia, was authorised to form a committee to bring in a special motion on this subject. The entire matter will be brought to the attention of the Federal Government. Before this session closed the President read a telegram which he had just received from Dr. Wolfred Nelson of New York informing the association that Dr. William Osler had been appointed Regius professor of medicine at the University of Oxford. Needless to say the announcement was received with hearty enthusiasm.

On assembling in the afternoon Dr. J. C. Davie of Victoria, British Columbia, vice-president of the Medical Council of British Columbia, delivered an address of welcome on behalf of the practitioners of the province. Dr. McKechnie delivered the address in Medicine and was accorded a hearty vote of thanks for his able deliverance. The address dealt mostly with the history of medicine in the province of British Columbia and contained interesting sketches of "medicine men" amongst the Indians on the Pacific coast. Mr. Mansfield, Fleet-surgeon on H.M.S. *Grafton*, was down on the programme to give an exhibition of a New Colour Test Apparatus, but being unavoidably absent, Dr. Glen Campbell demonstrated and explained the apparatus, which is meant for testing the eyesight of candidates for the army and navy. The next paper was by Dr. Kenneth McKenzie of Portland, Oregon, the subject of which was Moveable Kidney, and it elicited a prolonged discussion. Dr. Robert H. Craig of Montreal reported several interesting and rare cases of nasal origin. On the evening of this day there was held in the Hôtel Vancouver a conversazione which proved a brilliant social function, many well known society people coming over from Victoria for the occasion.

The first item on the programme at the opening of the morning session of the second day was the Address in Surgery which was delivered by Mr. Mayo Robson. There was a full attendance when the well-known English surgeon was introduced. The address had for its subject "The Pancreas and Diseases Thereof"; it was illustrated by means of a lantern demonstration and was listened to throughout with the closest attention. At the conclusion, Dr. F. J. Shepherd of Montreal proposed a vote of thanks to Mr. Robson which was heartily concurred in. Following this came a paper on Hernia of the Bladder complicating Inguinal Hernia, which was presented by Dr. Shepherd. Dr. S. R. Jenkins of Charlottetown, Prince Edward Island, president of the Maritime Medical Association, read a paper reporting a case of Hypertrophy of the Breasts, and exhibited photographs. Adjournment was taken in order that the visiting delegates might inspect Vancouver's septic tank under the guidance of Dr. T. F. Underhill who has recently been appointed medical health officer of Vancouver. Dr. J. W. Stirling presented the first paper in the afternoon session, on Diseases of the Eye, and was followed by Dr. D. Cruickshanks of Windsor, Ontario, with a paper of much interest, Therapeutic Hints from Bacteriology. The meeting adjourned early to attend the ladies' reception in Pender Hall. Some of the members took advantage of this adjournment to visit the natural park of Vancouver, and inspected with great interest some of the large trees which are said to measure as much as 57 feet in circumference.

In the evening Dr. Tunstall delivered the annual presidential address, taking up particularly four items of great interest in the practical medical politics of Canada—namely, dominion registration, the Canadian Medical Protective Association, a federal bureau of public health, and the treatment of inebriates. As an outcome of this address it was decided to memorialise the legislature of Quebec and the College of Physicians and Surgeons of Quebec to have the necessary permissive legislation enacted to provide for the proper working out of the Canada Medical Act, otherwise known as the Roddick Bill. Dr. Tunstall also strongly recommended the cordial support of the Canadian Medical Protective Association. Dr. E. C. Dudley of Chicago then delivered the Address in Gynæcology, illustrated by lantern slides, which proved one of the features of the meeting. The title of his address was "The Surgical Treatment of Complete Descent of the Uterus." Vancouver is building a fine new hospital which when completed will compare favourably with the best in the dominion. After Dr. Dudley's address the plans of this institution were projected on the canvas, so that the members could judge what it would be like when completed.

The morning session of the third day was opened with a paper on Tuberculous Peritonitis by Dr. C. H. Mayo of Rochester, Minnesota, and was listened to with marked attention. This was followed by Dr. Henry Howitt of Guelph, Ontario, with a paper on Meckel's Diverticulum, with report of cases. Dr. Howitt also exhibited several photographs of his cases. Dr. C. W. Wilson of Montreal read a paper on the Results (after one year) of the Lorenz Operation for Congenital Dislocation of the Hip. Dr. E. R. Secord of Brantford, Ontario, read a paper on the Operative Treatment of Spina Bifida. On the adjournment being taken the members from the maritime provinces to the number of ten or 12 were given a special address of welcome from the other members of the association who formerly claimed New Brunswick, Nova Scotia, and Prince Edward Island as their homes. The afternoon was entirely given over to a visit to the salmon canneries on the Fraser river at New Westminster and Steveston. In the evening a banquet was held in the Hôtel Vancouver which proved a most successful and enjoyable affair.

The morning session of the fourth day was entirely given over to business. The report of the nominating committee was presented by the chairman of that committee, Dr. Shepherd of Montreal. It was received and adopted entire. It recommended that as there was an invitation presented from the Maritime Medical Association the next annual meeting should be held at Halifax. Dr. John Stewart of Halifax was elected president. The following were the vice-presidents and local secretaries elected for the respective provinces: Prince Edward Island, Dr. McLaren (Montague Bridge) and Mr. H. D. Johnson (Charlottetown); Nova Scotia, Dr. J. B. Black (Windsor) and Dr. G. C. Jones (Halifax); New Brunswick, Dr. A. B. Atherton (Fredericton) and Dr. T. D. Walker (St. John); Quebec, Dr. J. E. Dubé (Montreal) and Dr. J. D. Cameron (Montreal); Ontario, Dr. H. Meek (London) and Dr. Stewart (Palmerston); Manitoba, Dr. W. S. England (Winnipeg) and Dr. Popham (Winnipeg); North West Territories, Dr. H. C. Wilson (Edmonton) and Dr. Hewittson (Pincher Creek); British Columbia, Dr. R. Eden Walker (New Westminster), and Dr. A. S. Monro (Vancouver); general secretary, Dr. George Elliott (Toronto); treasurer, Dr. H. Beaumont Small (Ottawa); executive council, Dr. G. M. Campbell, Dr. James Ross, and Dr. C. D. Murray, all of Halifax. After the election of officers a motion was submitted and passed regretting that the Canadian Government had not seen fit to establish a department of public health. Another strong motion favouring approaching the Dominion Government to restrict the manufacture and sale of dangerous patent drugs was also adopted. On the completion of the programme the meeting adjourned and all took boat for Victoria, the capital of the province. Here the Victorians tried to outrival the Vancouverites in their hospitality. A day and a half were spent in Victoria and the festivities included a boat excursion and concert, a visit to the naval station at Esquimalt, a visit to the Wimmiamshead quarantine station, and a reception at the Parliament buildings on the evening of Saturday, August 27th. A pronounced feature of the meeting was the presence of distinguished men from the motherland. It was very gratifying to see so many fellow practitioners from the Pacific States of the American Union. Everyone expressed their approval of the entertainments and arrangements; the citizens of both Vancouver and Victoria were most hospitable, many entertaining private parties during the continuance of the meeting. This year it was the extreme west; next year it will be the extreme east. 4000 miles act as a very small barrier to the constant attendant at the annual meetings of the Canadian Medical Association.

Toronto, Oct. 5th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Bubonic Plague.

PLAGUE continues in Brisbane, five cases, two of which were fatal, having occurred there. Two cases have been reported from Fremantle, in West Australia. Dr. B. B. Ham, commissioner of public health in Queensland, has stated that drastic measures will have to be taken in South Brisbane. He issued an emergency order on the municipal council and 40 men were put on at the council's expense to deal with the trouble. In some of the dilapidated buildings in the town infected rats have been found ever since the plague first visited Brisbane. He also stated that there was more dilapidated property in Brisbane for its size than in London, Birmingham, Edinburgh, or Glasgow.

Health of Sydney.

Dr. W. G. Armstrong, medical officer of the combined metropolitan districts of Sydney, has issued his report for the year 1903.

The deaths in the combined districts numbered 5714, being 11·14 per 1000—the lowest for many years. It was highest in 1875 when it was 26 per 1000. The infantile death-rate was 116 per 1000 births. The principal cause of the high infant death-rate was diarrhœa in various forms. The birth-rate (12,749) shows an almost unvarying falling off since 1894, when it was 31·07 per 1000. The natural increase of population shows a shrinking tendency from 1887 to 1898. It has varied little since 1899. In 1903 there were notified 833 cases of typhoid fever and 81 deaths therefrom. The fatalities were 9·72 per cent. of cases. The total number of deaths from the various manifestations of tubercular disease in the metropolis during 1903 was 599. This figure represents over 10 per cent. of the deaths registered from all causes and is equal to a death-rate of 1·19 per 1000 of the estimated mean population. It is 15 more than the number of deaths registered from the same causes in 1902. 483 of these deaths were caused by phthisis or tuberculosis of the lungs, 56 by tubercular meningitis, and 60 by other forms of tuberculosis. The death-rate from phthisis alone was 0·96 per 1000. The monthly mortality from phthisis was highest in April and lowest in November. The death-rate since 1885, when it was at its highest, shows a falling tendency.

Dr. Armstrong further re-affirms his opinions, expressed in previous reports, as to the necessity for notification of consumption if measures are satisfactorily to be taken to check its progress. He adds:—

Fortunately I am able to quote local statistics which exemplify very clearly the good results which may be achieved by even partial measures directed against the spread of consumption. They are furnished by the death-rates from phthisis of the city of Sydney and its suburbs during the past three years. For several years before 1901 the death-rates from phthisis, both in the city and suburbs, had been nearly stationary, with the death-rate of the city ranging at from 30 to 50 per cent. above that in the suburbs. In 1901 the city council began to enforce reforms in the general sanitation of dwellings within the city, which are of a nature known to be hostile to consumption. Improved ventilation of dwelling-rooms, especially in the poorer class of houses, and measures for remedying dampness of habitation, were insisted on. During the years 1901–1903 no less than 5636 dwellings in the city had defective ventilation of dwelling-rooms improved while over 4000 dwellings benefited by the removal of conditions conducive to dampness. Measures directed more immediately against consumption were the disinfection by the council of dwellings in which deaths from phthisis had occurred and the enactment of a by-law prohibiting expectoration upon the footways of the streets.

The general condition of dairies in the metropolitan area is reported to be good. Energetic action was taken by various authorities during the year to prevent the sale of adulterated or unwholesome food and drink.

Melbourne Medical Association.

The Melbourne Medical Association (composed of medical graduates of the University of Melbourne) held its annual meeting on August 27th and entertained the Premier at supper. The retiring President, Dr. S. S. Argyle, in his address referred to some points in the relations of medicine and the State. The present system of municipalities appointing as health officers men in active practice at a small salary was condemned, and it was suggested that several adjacent municipal councils should combine to appoint an expert in hygiene at an adequate salary so that he might give his whole time to his duties. Food adulteration and the use of preservatives in milk required legislative action. In Melbourne and its suburbs hundreds of infants died every summer from the use of contaminated milk. A thorough system of physical culture should be established in the State schools and State-aided gymnasiums should be provided, with proper instructors, throughout the land, so that the youth of the country might keep up what they had commenced at school. Another function of the State was to protect the community against ill-trained and incompetent practitioners and to limit the healing art to properly trained individuals. Chinese doctors, herbalists, clairvoyants, cancer curers, and all kinds of quacks plied their trade and exploited the public wholesale. Druggists treated across the counter all sorts and conditions of disease with the assurance that ignorance alone could justify. The Premier, in replying to the toast of his health, said that the Government had in hand a Milk Bill to prevent the evils referred to by Dr. Argyle. He agreed with his views about health officers. The Government was also determined, so far as it possibly could, "to stop hypocrites and frauds from practising as medical men." As to physical culture, he thought that would be best got in following the plough and in rifle clubs. The State was giving too much education now for nothing. He considered that the saving of lives and the health of the community should be the first consideration of the Government, and as head of the Ministry he was prepared to assist the association in doing anything which would tend in that direction.

Medical Examination of Pilots.

A board for the periodical examination of pilots in New South Wales has been gazetted consisting of Sir Henry Normand MacLaurin, M.D., M.L.C., Dr. J. Ashburton Thompson, and Dr. F. Antill Pockley, ophthalmic surgeon.

The Opium Habit.

The Commonwealth Government recently made some inquiries into the habit of opium-smoking. It has been ascertained that in the city of Melbourne seven houses conducted by Chinese were resorted to by opium-smokers. It was estimated that 40 Europeans frequented these places. Opium was sold at some of the Chinese shops as well as at the place where it was smoked. In Adelaide eight houses were known as places where opium was smoked, all being occupied by Chinese and frequented by very few Europeans. There were two recognised opium dens in Fremantle, and in and around Perth opium-smoking was carried on by about 20 Europeans.

Medical Officer to the Board of Water-supply and Sewerage, Sydney.

The Metropolitan Board of Water-supply and Sewerage, Sydney, is calling for applications for the position of medical officer and bacteriologist. The salary is £625 per annum and the selected candidate is to devote the whole of his time to the duties.

Death of Mr. H. C. Purcell.

Mr. Herbert C. Purcell died from pneumonia at his residence, Jamieson-street, Sydney, on August 29th. He was born in Dublin in 1846, his father being Mr. J. A. Purcell, Q.C., district court judge at Limerick. He studied medicine at Steevens's Hospital, Dublin, and at the Royal College of Surgeons in Ireland. He practised in many places—New York, India, New Zealand, Queensland, and finally Sydney.

Sept. 6th.

Obituary.

HENRY CAMPION, M.R.C.S. ENG.

BY the death of Henry Campion of Manchester the dental profession has lost one of its oldest and most respected members. Born at Exeter in 1828 he became, after leaving school, the pupil of Thomas Sheffield who, practising for many years as a dentist in Exeter, made a great reputation for himself in the west of England. During his pupilage Henry Campion attended the Exeter Hospital and later went to London where he entered as a student at St. Bartholomew's Hospital in order to study for the Membership of the Royal College of Surgeons of England. This qualification he obtained in 1856 and in the same year he went to Manchester and began practice there as a dentist. His skill and his urbanity, his fine character and ready sympathy, all combined to build up in a very short time a wide and influential connexion and he soon took his place among the leading practitioners not only in Manchester but in the north of England. He took part in what was known as the Dental Reform Movement which culminated in the passing of the Dentists Act of 1878 and the subsequent formation of the British Dental Association. Of this Association the first president was Sir John Tomes and the second was Henry Campion who entered upon his presidential year on the occasion of

the visit of the Association to Liverpool in 1882. He was the first president of the Midland (now the North Midland) branch of the Association, and he held the presidency of the Manchester Odontological Society. In the early "eighties" he helped to establish the Victoria Dental Hospital in Manchester; he was consulting dental surgeon to that institution, and for some years he was chairman of its dental committee.

Mr. Campion withdrew from practice only a few years ago and has lived a retired life at Cheadle, a village not far from Manchester, where his garden and his violoncello occupied much of his well-earned leisure. He was, indeed, a keen musician, and from the beginning was an ardent supporter of the concerts which afterwards became so famous and which were started by Charles Hallé in 1857—the year of the great Art Treasures Exhibition at Manchester. Henry Campion was a loyal Churchman and a Conservative in politics but the tenacity with which he held to his own principles did not prevent close friendships with others who held very different views. Never yielding in matters that he felt to be essential his genial disposition, his pleasant wit, and his warm heart made him beloved and respected by a large circle of patients and others with whom he had to do. In his own profession his influence was widely felt as that of a man of sound judgment and disinterested motives, whilst not his great ability alone but the high standard of his consistent life has helped to raise his profession in the eyes of the outside world as only the life of a good man can do.

WILLIAM NAUGHTIN, M.R.C.S. ENG.

As already announced in our columns, Mr. William Naughtin died on Sept. 6th at 104, Gloucester-place, Portman-square, London, W. He was a native of County Kerry in Ireland and came to England for the purpose of studying medicine. He entered at Charing Cross Hospital where he became first prizeman in senior surgery in 1866 and in the same year obtained the diploma of M.R.C.S. Eng. Ever since coming to England, more than 40 years ago, he has lived at various places in Marylebone, his residence at the time of his death being in Gloucester-place as above stated. His kindly disposition and thoughtfulness for others endeared him to a wide circle of patients and friends. Failing health compelled him to retire from practice in March, 1903, since which time he was a great sufferer from illness most patiently borne. Mr. Naughtin has left a widow and family. The funeral took place in Kensal-green Roman Catholic Cemetery.

JAMES WALLACE, M.D., F.F.P.S. GLASG., L.R.C.S. EDIN.

Dr. James Wallace, who died very suddenly on Oct. 10th at his residence at 16, Union-street, Greenock, was the senior member of the profession in the town. He was born in Edinburgh in January, 1826, and went to Greenock with his parents when he was about two years of age. In 1841 he entered as an arts student at the University of Glasgow and graduated as M.A. in 1845. It was originally intended that he should study for the ministry but he eventually preferred a medical career and after completing the usual curriculum graduated as M.D. at Glasgow in 1850, taking the diploma of L.R.C.S. Edin. in the following year. In 1855 he was admitted F.F.P.S. Glasg. Soon after becoming qualified he commenced practice in Greenock and received an appointment under the parochial board in the service of which or in that of the parish council he continued all his life. His jubilee as medical officer under this service was celebrated in March, 1902, when he was presented with his portrait in oils and a handsomely illuminated address and was entertained at banquets in the town hall and the Tontine Hotel. He was also visiting medical officer of the Greenock parochial lunatic asylum at Smithston, an institution which was established in 1879 and now has 230 inmates. For 33 years he was a surgeon to the Greenock Infirmary and had a considerable reputation as an operator but, unfortunately, he had to abandon this part of his work in consequence of an injury to his right hand sustained during the performance of an operation. Dr. Wallace from an early period took much interest in questions of public health. As far back as 1857 he called attention to the defective drainage and consequent unhealthiness of a part of the town and in 1860 he published in pamphlet form a paper read before a meeting of the Social Science Association and entitled "Observations on the Causes of the Present Mortality in Greenock." In 1875 he became medical officer of health of Greenock, a capacity in which he rendered excellent service to the town. Dr. Wallace was also a justice of the peace and Admiralty surgeon and agent. He was ever ready to help in promoting schemes of public utility and did much on behalf of the local choral societies, the Philosophical Society, and the Greenock library. In addition to the pamphlet already mentioned he was author of papers, chiefly on surgical subjects, contributed to the *Glasgow Medical Journal*. He has left two sons and three daughters, Mrs. Wallace having died several years ago. The funeral, which took place at Greenock cemetery on Oct. 13th, was very largely attended.

Medical News.

UNIVERSITY OF OXFORD: EXAMINATIONS FOR THE DEGREES OF B.M. AND B.CH.—The Board of the Faculty of Medicine gives notice that the following regulations will first come into effect in Trinity term, 1905. Candidates for the several parts of the examinations for the degrees of B.M. and B.Ch. are required, at the time of entering their names with the secretary to the Boards of Faculties, to produce to him the following certificates, viz.:—

FIRST EXAMINATION.

I. Human Anatomy.—Every candidate for the examination in human anatomy must produce a certificate, signed by the proper authority, showing that he has dissected the whole body once.

II. Human Physiology.—Every candidate for the examination in human physiology must produce a certificate, signed by the proper authority, showing that he has attended a systematic course of laboratory instruction in practical histology and in practical physiology in the physiological department of the University or an equivalent course in the laboratories of a medical school or schools approved by the Board of the Faculty of Medicine. The Board has approved for this purpose the physiological laboratory of the medical school of any university in the United Kingdom which gives a medical degree, including the laboratory of any school of the University of London; the physiological laboratories of the Medical Schools of Yorkshire College, Leeds, University College, Bristol, and Firth College, Sheffield. In order that the course may be recognised as equivalent the certificate must state that the holder has attended a course of practical histology for a period of at least three months and a course of practical physiology for a similar period, this latter including both physiological chemistry and simple experiments upon muscle and nerve.

SECOND EXAMINATION.

III. Pathology.—Every candidate for the examination in pathology must produce the two following certificates, viz.:—(*a*) A certificate of having attended a course of laboratory instruction in practical pathology which shall have included 20 meetings devoted to morbid histology and 16 meetings devoted to practical instruction in bacteriology. Such course may be taken in the laboratory of the department of pathology in any university in the United Kingdom or in that of any school of the University of London. (*b*) A certificate of having acted as post-mortem clerk for a period of three months in any of the hospitals approved by the Board of the Faculty of Medicine.

IV. Forensic Medicine and Public Health.—Every candidate for the examination in forensic medicine and public health must produce the five following certificates—viz.: (*a*) a certificate showing that he has acted as dresser for a period of six months in the surgical wards and as clinical clerk for a period of six months in the medical wards of a hospital or hospitals approved by the Board of the Faculty of Medicine. (*b*) A certificate, signed by the proper authority, showing that the holder has attended a course of lectures on mental disease with clinical demonstrations, in connexion with one of the recognised medical schools; or that he has attended for three months the clinical practice of a lunatic asylum recognised by the Board of the Faculty of Medicine. (*c*) A certificate, signed by the proper authority, showing that the holder has attended for not less than two consecutive months on the clinical practice of a fever hospital or asylum recognised by the Board of the Faculty of Medicine. (*d*) A certificate of proficiency from a public vaccinator appointed by the Local Government Board and authorised by them to give such certificates. (*e*) A certificate, signed by the proper authority, of having attended 20 cases of labour in the maternity department of a recognised medical school, or the Rotunda Hospital in Dublin, or of having attended 30 cases of labour in Queen Charlotte's Lying-in Hospital, or under the superintendence of a duly registered medical practitioner. The certificate to state that the holder has in all cases been present at the time of the birth of the child.

V. Medicine, Surgery, and Midwifery.—Every candidate for the examination in medicine, surgery, and midwifery must produce the six following certificates—viz., the five certificates required from candidates for the examination in forensic medicine and public health, and in addition (*f*) a certificate showing that he has attended, during a period of two years, the medical and surgical practice of a hospital or hospitals approved by the Board of the Faculty of Medicine.

A list of the hospitals approved by the Board is embodied in the copies of these regulations which may be obtained by application to the secretary to the Boards of Faculties.

UNIVERSITY OF CAMBRIDGE.—The following degrees were conferred at the Congregation on Oct. 13th:—

Bachelor of Medicine.—H. Falk, King's; C. Roper, Caius; and H. C. S. Woodward, Downing.

Bachelor of Medicine and Bachelor of Surgery.—P. N. Panton, Trinity; C. T. MacL. Plowright, St. John's; J. G. Slade, Clare; D. Pennington, Caius; and B. H. Palm. Emmanuel.

Bachelor of Surgery.—C. F. Pridham, Caius.

The following candidates have satisfied the examiners in both parts of the sanitary science examination held in October and are entitled to the Diploma in Public Health:—

Evett Gordon Allport, John Martin Buist, Charles John Caddick, Miss Anne Fenton Cleaver, Stanley William Randolph Colyer, Naunidh Rai Dharmavir, Miss Frances Margaret Harper, Samuel Jesudasan, Alexander Leitch, Dugald Macdougall, Arthur Alexander Joseph McNabb, Kurunthotical Thomas Matthew, Richard Prichard, Edward Hugh Roberts, Ralph Davis Smedley (Pembroke), Leonard Smith Talbot, Henry Maurice Tickell (Trinity), Mangattu Kuriyan Varughese, Charles Stuart Vines, and Charles Edward Williams (Gonville and Caius).

Mr. W. E. Dixon, M.D. Lond., M.A. Camb., has been reappointed assistant to Professor Bradbury.—Mr. P. V. Bevan and Mr. C. Chittock, Trinity, have been appointed Demonstrators of Experimental Physics.—The election of a University representative on the General Medical Council has been fixed for Oct. 24th. Dr. D. MacAlister, the present representative, is re-eligible and notice has been issued that he will be voted for.—The examinations for the M.B. degree will begin this term on Dec. 12th. The names of candidates have to be sent in by Nov. 28th.

UNIVERSITY OF DURHAM.—At the convocation held on Oct. 1st the following degrees and diplomas were conferred:—

Doctor in Medicine.—John Spencer Hall, M.B., B.S. Durh.; John Rutherford Halliday, M.B. Durh.; Frank Jeffree, M.B. Durh.; Alfred Parkin, M.B., B.S. Durh., F.R.C.S. Eng.; Godfrey de Bec Turtle, M.B., B.S. Durh.; and William Harper Wigham, M.B. Durh.

Doctor in Medicine for Practitioners.—Ernest Dykes Bower, M.R.C.S. Eng., F.R.C.S. Edin.; Beaumont Harry Comerford, M.R.C.S. Eng., L.R.C.P. Lond.; Philip Henry Dunn, M.R.C.S. Eng., L.R.C.P. Lond.; John Kinglon Frost, M.R.C.S. Eng., L.S.A., D.P.H.; William Verner Furlong, L.R.C.S. Irel., L.R.C.P. Edin.; Frank K. Holman, M.R.C.S. Eng., L.R.C.P. Lond.; Richard Mansfeville Hugo, L.R.C.P., L.M., F.R.C.S. Irel.; Thomas Slater Jones, M.R.C.S. Eng., L.R.C.P. Lond.; Frederick St. John Kemm, L.R.C.P. & S. Edin., L.S.A.; Arthur Charles Adams Lovegrove, L.S.A.; Thomas Houghton Mitchell, L.R.C.P. & S. Edin.; Herbert Ellis Rowell, M.R.C.S. Eng., L.R.C.P. Lond.; George Jackson Smith, L.R.C.P. & S., L.M. Irel.; James Bernard Wall, L.R.C.P. & S. Edin.; and George Rowland Williams, M.R.C.S. Eng., L.R.C.P. Lond.

Master in Surgery (M.S.).—Lachlan George Fraser, M.D., B.S. Durh., and Alfred Henry Proctor, M.B., B.S. Durh.

Bachelor in Medicine (M.B.).—John Arthur Bell, St. Bartholomew's Hospital; Henry Mounsey Braithwaite, Arthur Budd, Llewelyn Alfred Henry Bulkeley, Lewis Augustus Clutterbuck, L.R.C.P. & S. Edin., L.R.C.P.I., William Ernest Falconar, and Harold Edgar Featherstone, College of Medicine, Newcastle-upon-Tyne; Margaret Douglas French, London School of Medicine for Women; Norman Haliburton Hume, College of Medicine, Newcastle-upon-Tyne, and London Hospital; Thomas Charles Hunter and Sophia Bangham Jackson, College of Medicine, Newcastle-upon-Tyne; William Watkiss Jones, Birmingham University; George Errington Lloyd, Colin Francis Frederick McDowall, Stanley Robson, William Tait Sewell, Arthur Lewin Sheppard, William Edward Stevenson, and William Lister Tindle, College of Medicine, Newcastle-upon-Tyne; Janet Arthur Vaughan, London School of Medicine for Women; and Samuel George Webb, Birmingham University.

Bachelor in Surgery (B.S.).—John Arthur Bell, St. Bartholomew's Hospital; Henry Mounsey Braithwaite, Arthur Budd, Llewelyn Alfred Henry Bulkeley, Lewis Augustus Clutterbuck, L.R.C.P. & S. Edin., L.R.C.P. Irel., and Harold Edgar Featherstone, College of Medicine, Newcastle-upon-Tyne; Margaret Douglas French, London School of Medicine for Women; Norman Haliburton Hume, College of Medicine, Newcastle-upon-Tyne, and London Hospital; Thomas Charles Hunter and Sophia Bangham Jackson, College of Medicine, Newcastle-upon-Tyne; William Watkiss Jones, Birmingham University; George Errington Lloyd, Colin Francis Frederick McDowall, Stanley Robson, William Tait Sewell, Arthur Lewin Sheppard, and William Edward Stevenson, College of Medicine, Newcastle-upon-Tyne; Janet Arthur Vaughan, London School of Medicine for Women; and Samuel George Webb, Birmingham University.

Diploma in Public Health (D.P.H.).—Charles Ravenscroft Stewart, M.B., B.S. Durh., and John Stokes, M.D., B.S., L.S.Sc., Durh., M.R.C.S. Eng.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held on Oct. 12th at 11, Chandos-street, London, W., Dr. G. F. Blandford, the treasurer, being in the chair. Three new members were elected and the death of a member was reported. There were no fresh applications for grants. The death of a widow was announced who had received £957 since January, 1879. Applications for renewal of grants were read from 52 widows, 13 orphans, and three orphans on the Copeland Fund, and it was resolved that £1293 should be distributed at the next court, subject to the report of the visitors. On the motion of the acting treasurer it was decided to give at Christmas £10 to each of the 52 widows, £3 each to the 13 orphans, and £5 to each of the three orphans on the Copeland Fund; in all £574. The expenses of the quarter were £60 14*s.* 6*d.*

ROYAL COLLEGE OF SURGEONS IN IRELAND.—FELLOWSHIP EXAMINATION.—Dr. R. M. Smyth, assistant superintendent, Natal Government Hospital, Durban, South Africa, having passed the necessary examination, has been admitted a Fellow of the College.

LEPERS' DREAD OF THEIR LIKE.—A leper house has been built on the island of Esel, Russia, for 100 patients. But the lepers of the island hesitate to enter the house fearing a still more serious contagion from the lepers who go into it from the mainland, says a correspondent of the *Novoe Vremya*.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—Entrance scholarships at the Westminster Hospital Medical School, varying in value from £30 to 110 guineas, have been awarded to the following gentlemen:—K. F. R. Davison (Epsom scholarship), R. W. Ironside (Universities' scholarship), H. S. Hingston (natural science), W. R. Asplen (Governors' scholarship), C. G. Richardson (scholarship in arts), A. Evans (arts), and A. O. Mitchell (science scholarship).

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The New York *Electrical Review* of Oct. 8th states that the officers elected at the St. Louis convention of the American Electro-Therapeutic Association held recently are as follows. President: Dr. Emil Heuel, New York city. First Vice-President: Dr. Charles Hamilton Hughes, St. Louis, Missouri. Second Vice-President: Dr. Morris Weil Brinkmann, New York city. Treasurer: Dr. Richard Joseph Nunn, Savannah, Georgia. Secretary: Dr. Clarence Edward Skinner, New Haven, Connecticut. The feature of the convention was the admirable report of the work done by the committee on current classification and nomenclature. This committee consisted of Mr. William J. Jenks, New York city, chairman; Professor Elihu Thomson, Lynn, Mass.; Professor Samuel Sheldon, Brooklyn, New York; and Dr. Charles L. Clark of Bronx Borough, New York city.

LONDON SCHOOL OF TROPICAL MEDICINE.—As showing the growing interest in the study of tropical medicine we make an exception to our usual custom in publishing the following list of students whose names have been entered at the above school for the sixteenth session, October-December, 1904:—C. H. D. Ralph, M.R.C.S. Eng., L.R.C.P. Lond. (Colonial Office), Gold Coast; F. L. Norris, M.B., C.M. Glasg. (Colonial Office), Antigua; J. W. Gromitt, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. (Colonial Office), Mauritius; A. C. Lorena, L.R.C.P. & S. Edin. (Colonial Office), West Africa; D. A. Ashton, M.B., Ch.B. Vict. (Colonial Office), Southern Nigeria; J. C. Bhuttacharji, L.R.C.P. & S. Edin. (Colonial Office), Gold Coast; H. N. H. Joynt, M.B., B.Ch., M.D. Dub. (Colonial Office), Fiji; P. Phillips, M.R.C.S. Eng., L.R.C.P. Lond. (Colonial Office), Lagos; R. Dane, M.R.C.S. Eng., L.R.C.P. Lond. (Colonial Office), Singapore; C. H. D. Cooper, M.R.C.S. Eng., L.R.C.P. (Colonial Office), Federated Malay States; T. R. Robertson, M.B., Ch.B. Edin. (Colonial Office), West Indies; B. M. Flood, L.R.C.P. & S. Edin. (Colonial Office), Northern Nigeria; D. Alexander, L.R.C.P. & S. Edin. (Colonial Office), Northern Nigeria; G. Lane, L.R.C.P. & S. Edin. (Foreign Office), Mombasa, East Africa; Miss K. A. Dawson, L.S.A., M.D. Brux. (Society for the Propagation of the Gospel), India; Miss M. K. Gibson, M.B. Irel. (Society for the Propagation of the Gospel), India; Miss A. M. MacPhail, L.R.C.P. & S. Edin. (United Free Church Mission), Madras, India; A. F. Cole, M.R.C.S. Eng., L.R.C.P. Lond. (Church Missionary Society), China; H. F. Hodgkin, M.B., B.C. Camb. (Friends' Foreign Missionary Association), China; J. H. Cook, M.S., M.B. Lond., F.R.C.S. Eng. (Church Missionary Society), Uganda; J. C. Carr, M.B., Ch.B., M.D. Edin. (private); L. Austen Holcroft, M.B., Ch.B. Edin. (private); Luis de Roux. M.D. Bogata (private), Panama; R. Johnston, M.B., C.M. Aberd. (private), India; C. A. Bentley, M.B., C.M. Edin. (private); L. S. Chibas, M.D. Havana & New York (private), Cuba; W. A. Densham, M.R.C.S. Eng., L.R.C.P.

Lond., D.P.H. (private); A. W. May, M.D., B.Ch. Dub. (private), Rhodesia; C. M. MacLean, M.D. McGill (private), Gold Coast; D. H. Ainslie, M.B., Ch.B. Aberd., D.P.H. (private); Alex. Sultana, M.D. Malta (Government of Malta), Malta; and Miss Helen Mayo, M.B., B.S. Australia (private), India.

SMALL-POX HOSPITAL AT BATH.—At the meeting of the Bath sanitary committee, held on Oct. 10th, it was decided to erect a small-pox hospital at Old Down. The building will contain six beds, with facilities for further extension in case of need.

ROYAL DEVON AND EXETER HOSPITAL.—The governors of the Royal Devon and Exeter Hospital have contributed £400 towards the £1000 required for the erection of the new operation theatre.

NATIONAL DENTAL HOSPITAL.—The annual dinner of the past and present students will be held at the Trocadéro Restaurant, London, W., on Saturday, Nov. 19th. The chair will be taken by Mr. Andrew Clark.

DONATIONS AND BEQUESTS.—By the will of Mr. James Barry, Cliftonville, Northampton, £1000 are bequeathed to the Northampton General Hospital.—Under the will of Mr. Thomas Oliver, of Kingston-upon-Hull, on the death of his wife the Hull Royal Infirmary will benefit in the sum of £1000.

THE SIBERIAN RAILWAY AND ASIATIC DISEASES.—The Russian Chief Medical Inspector von Anrep, anticipating the possible outbreak in European Russia of epidemics caused by infection conveyed by the Siberian railway, has made a journey along the line to inspect the medical and sanitary arrangements. Disinfecting stations have been installed at Innokentevsko, near Irkutsk, and at Tcheliabinsk.

THE FACULTY OF MEDICINE OF THE UNIVERSITY OF LONDON.—The first meeting of the Faculty of Medicine in the session 1904–05 will be held at the University Buildings, South Kensington, on Tuesday, Nov. 1st, at 5 P.M. The chief business of the meeting will be the election of a dean of the faculty for the succeeding two years. Mr. H. T. Butlin has held the office of dean since the establishment of the faculty four years ago and by the statutes of the University is not re-eligible. It will also be necessary to select a new vice-dean, this post having been vacated by Sir Isambard Owen on his recent appointment in the University of Durham. The question of the constitution of the boards of study for 1904–05 will be submitted to the faculty.

INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual dinner of this society was held on Oct. 14th at the Trocadéro Restaurant, London, Dr. J. F. J. Sykes, the President, being in the chair. The entertainment of the company was well provided for, a band playing during dinner, a concert taking place after the repast, and, in addition, there were seven toasts. Amongst the speakers was Dr. B. A. Whitelegge who proposed the toast of "The Municipal Authorities." He pointed out how the municipal authorities, in consequence of the decentralising tendency of the times, were being burdened with many important duties. He congratulated the society on the fact that so many public authorities now showed their practical appreciation of the value of medical officers of health by paying sufficient salaries to attract the best men. The mayor of St. Pancras, in replying, observed amidst considerable applause that the mission of the medical officers of health was to give equality of opportunity alike to the poor as to the rich in great cities and towns. The vice-chancellor of the University of London, Dr. P. H. Pye-Smith, in submitting the toast of "The Society" mentioned with pride that this country had taken the lead in all sanitary movements and the President, in replying, stated that the society now numbered nearly 1000 members. Dr. J. Priestley, in replying to the toast of "The Officers" of the society, said that the society had that day decided to take new premises in Russell-square. In view of the increased expense in connexion with these new premises the members of the society should obtain for themselves the position to which they were entitled and a Royal Charter should be procured and permission should be sought from the King to designate the society by the prefix "Royal." It was hoped that in the year 1906 the society would hold a public health exhibition and conversazione at which not only French medical officers would be represented but also medical officers of all other continental countries, including Russia and Japan. Amongst other speakers were Dr. J. Groves, Mr. Andrew Clark, and Dr. A. Newsholme.

CARE OF THE FEEBLE-MINDED.—A conference was held at the Guildhall, London, on Oct. 13th and 14th under the auspices of the National Association for Promoting the Welfare of the Feeble-Minded and the National Special Schools Union. The former association has dealt with the question of the feeble-minded during the eight years of its existence. The National Special Schools Union was founded last year for those connected with educational work. The combined efforts of these two bodies enabled the conference to deal very comprehensively with the whole subject involved. Lady Frederick Brudenell Bruce received the visitors and the chair was taken by Mr. A. A. Allen, chairman of the London County Council special schools committee. Mrs. Burgwin read a paper on Administrative Difficulties in Special Schools, when a motion was passed "that the Act of 1899 should cease to be permissive and should be made compulsory on all education committees." Mr. W. H. Dickinson, L.C.C., chairman of the National Association, then presided. Dr. W. A. Potts read a paper on the Problem of the Morally Defective. In the absence of Miss Douglas Townsend her paper on Two Ends of the Chain was read by Miss Kirby. It advocated the permanent control of such feeble-minded girls as had become mothers and instanced the Home for Mothers and Infants managed by the National Association where, so far, these girls seemed to be willing to stay. A discussion followed. Dr. G. E. Shuttleworth took the chair in the afternoon when Mr. Damer Harrisson read a paper on Mentally Defective Children from a Physiological Point of View and contended that educational effort should be directed to the hands and heart rather than to the head. Miss Collard discussed the Educational Treatment of Physically Defective Children. Dr. Eichholz, Dr. Wehrhahn (speaking in German), and Miss Dendy spoke of the excellent work carried out at Munich. In the absence of Sir Thomas Dyke Acland Mr. Vallance took the chair, when Sir William Chance and Mr. C. S. Loch discussed the question of what the Poor-law could do for the mentally defective. Sir William Chance, speaking of children, was of opinion that it was purely a matter of education and best left, therefore, for educational authorities to deal with. Mr. Loch, treating of the adult feeble-minded in workhouses, said that somehow present institutions did not seem to meet the need and after discussing various schemes said that personally he was in favour of a separate organisation for them, as "afflicted," and not of an organisation for them which would form part of the Poor-law. Miss M. K. Bradby discussed "After-Care" from the Industrial Side. In her remarks she said that whatever employment the feeble-minded undertook they ought never to be apprenticed. She urged more technical training in the schools. Dr. Shuttleworth gave an interesting account of after-care abroad and insisted that all classes of feeble-minded children required some kind of after care. He suggested that in order to introduce uniformity into the work and to render the collection of statistics more valuable the case-sheet which had been drawn up by the members of the National Association and their scheme for after-care might prove useful. Dr. Fletcher Beach in a paper on Characteristics to be observed in Mentally Defective Children said that these characteristics were to be divided into three sections, physical, mental, and moral, and described the various peculiarities in each section. The Powers of Detention were dealt with by Sir Robert Anderson and Mr. A. F. Tredgold. Sir Robert Anderson stated that false notions of liberty prevailed on these subjects, both for the criminal and for the feeble-minded. They must eliminate the unfit and while protecting society should secure that the unfit should be protected against themselves. Mr. Tredgold advocated (1) after-care associations, voluntary boarding homes, and colonies for those who could be termed self-supporting; (2) the establishment of industrial colonies for the permanent detention of those only partially self-supporting; and (3) institutions on a cheaper scale for the permanent detention of the failures. The meeting terminated with a resolution—

That it should be enacted that all feeble-minded persons who, after the expiration of their training, were found to be incapable of self-support and all feeble-minded persons found to be at large without proper control or means of subsistence, or proved guilty of offence against the law, should be committed to permanent care in an industrial colony.

BOOKS, ETC., RECEIVED.

ADLARD AND SON, Bartholomew-close, E.C.

The Croonian Lectures on Muscular Movements and their Representation in the Central Nervous System. Delivered before the Royal College of Physicians of London, June, 1903. By Charles E. Beevor, M.D. Lond., F.R.C.P., Physician to the National Hospital for the Paralysed and Epileptic and to the Great Northern Central Hospital. Price not stated.

Ex Cathedrâ Essays on Insanity. By T. Claye Shaw, M.D., F.R.C.P., Lecturer on Psychological Medicine, St. Bartholomew's Hospital, London; late Examiner in Mental Physiology, University of London; Examiner in Psychological Medicine, Royal Army Medical College. Price 5s. net.

ARNOLD, EDWARD, 41 and 43, Maddox-street, Bond-street, W.

Lectures on Diseases of Children. By Robert Hutchison, M.D, F.R.C.P., Assistant Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond-street. Price 6s.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

Handbook of Diseases of the Ear. For the Use of Students and Practitioners. By Richard Lake, F.R.C.S. Eng., Surgeon, Royal Ear Hospital, Lecturer on Practical Otology, Medical Graduates' College. Second edition. Price 6s. net.

The After-treatment of Operations. A Manual for Practitioners and House Surgeons. By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab., Hunterian Professor, Royal College of Surgeons; Surgeon to King Edward VII. Hospital for Officers. Second edition. Price 5s. net.

The Nutrition of the Infant. By Ralph Vincent, M.D., M.R.C.P. Lond., Physician to the Infants' Hospital; late Senior Resident Medical Officer, Queen Charlotte's Lying-in Hospital. Second edition, revised and enlarged. Price 10s. 6d. net.

DUCKWORTH AND CO., 3, Henrietta-street, Covent-garden, W.C.

Fetichism in West Africa. Forty Years' Observation of Native Customs and Superstitions. By the Rev. Robert Hamill Nassau, M.D., S.T.D., for forty years a Missionary in the Gabun District of Kongo-Française. Price 7s. 6d. net.

HAZELL, WATSON, AND VINEY, LIMITED, 52, Long-acre, W.C.

Mediterranean Winter Resorts. A Complete and Practical Guide to all the Health and Pleasure Resorts on the Shores of the Mediterranean. With Special Articles on the Principal Invalid Stations by Resident English Physicians. By Eustace Reynolds-Ball, B.A., F.R.G.S. Fifth edition, 1904 (revised to date and enlarged). Pp. 618, with new map. 6s. Also published in Two Parts: Part I., South Europe; Part II., North Africa and Islands; each volume sold separately, price 3s. 6d.

HEINEMANN, WILLIAM, 21, Bedford-street, London, W.C.

King Leopold's Rule in Africa. By Edmund D. Morel (E. D. M.), author of "Affairs of West Africa," "The British Case in French Congo," "The Congo Slave State," &c. Price 15s. net.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

Trachoma. By Dr. J. Boldt. Translated by J. Herbert Parsons, D.Sc., F.R.C.S., and Thos. Snowball, M.B., C.M. With an Introductory Chapter by E. Treacher Collins, F.R.C.S. Price 7s. 6d. net.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE SCIENTIFIQUE, 93, Boulevard Saint-Germain, VIe, Paris.

Chirurgie du Gros Intestin. Nouvelles Méthodes d'Anastomose, d'Exclusion, et de Résection de l'Intestin: Implantation double et Drainage par l'Intestin. Par A. Monprofit, Professeur de Clinique Chirurgicale à l'Ecole de Médecine, Chirurgien de l'Hôtel-Dieu d'Angers. Price not stated.

La Gastro-Entérostomie. Histoire Générale, Méthodes Opératoires. Les Cent Cinquante Premières Opérations de la Clinique Chirurgicale d'Angers. Par A. Monprofit, Professeur de Clinique Chirurgicale à l'Ecole de Médicine, Chirurgien de l'Hôtel-Dieu d'Angers. Price Fr.15.

KARGER, S., Karlstrasse, 15, Berlin, N.W.

Lehrbuch der Nervenkrankheiten für Aerzte und Studierende. Von Prof. Dr. H. Oppenheim in Berlin. Vierte vermehrte und verbesserte Auflage. Two volumes. Price M.30.

Die klinische Bedeutung der Eosinophilie. Von Dr. med. Karl Meyer. Von der medizinischen Fakultät der Universität Rostock preisgekrönte Schrift. Price M.3.

Anatomie und physikalische Untersuchungsmethoden (Perkussion, Auskultation, &c.). Anatomisch-klinische Studie. Von Dr. R. Oestreich, Privatdozent an der Universität, Prosektor des Königin Augusta-Hospitals, und Dr. O. de la Camp, Privatdozent an der Universität, Assistent der II. med. Univers.-Klinik (Charité) in Berlin. Price M.7.40.

LEHMANN, J. F., Heustrasse, 20, München.

Atlas der Deskriptiven Anatomie des Menschen. Von Dr. med. J. Sobotta, ao. Professor und Prosektor der Anatomie und der Anthropotomischen Anstalt in Würzburg. II. Abteilung: Die Eingeweide des Menschen einschliesslich des Herzens. Preis M.16. Text dazu, preis, M.3.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

Elementary Practical Physiology. By John Thornton, M.A., Author of "Elementary Physiography," &c., Headmaster of the Municipal Secondary School, Bolton. (Longman's Practical Elementary Science Series.) Price 3s. 6d.

The Essentials of Chemical Physiology. For the Use of Students. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians, Professor of Physiology in King's College, London. Fifth edition. Price 4s. 6d. net.

MACMILLAN AND CO., LIMITED, London.

The Food of the Gods and How it came to Earth. By H. G. Wells. Price 6s.

MARLBOROUGH, E., AND CO., 51, Old Bailey, London, E.C.

Japanese Grammar Self-Taught. (In Roman Character.) With Phrases and Idioms. By H. J. Weintz. Price, wrapper, 4s.; cloth, 5s.

MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Trypanosomes et Trypanosomiases. Par A. Laveran, Membre de l'Institut et de l'Académie de Médecine, et F. Mesnil, Chef de Laboratoire à l'Institut Pasteur. Price Fr.10.

MEDICAL SOCIETY OF THE STATE OF NEW YORK (Secretary, Frederic C. Curtis, Albany).

Transactions of the Medical Society of the State of New York for the Year 1904. Published by the Society. Price not stated.

PENTLAND, YOUNG J., Edinburgh and London.

The Nervous Affections of the Heart. Being the Morison Lectures delivered before the Royal College of Physicians of Edinburgh in 1902 and 1903. By George Alexander Gibson, M.D., D.Sc., F.R.C.P. Edin., F.R.S.E., Physician to the Royal Infirmary and Lecturer on Medicine and Clinical Medicine in the Medical School of the Royal Colleges, Edinburgh. Price not stated.

PHILIP, GEORGE, AND SON, LIMITED, 32, Fleet-street, E.C.

Philip's Handy-Volume Atlas of London. A Series of Fifty-five Sectional Maps (on a scale of 3 inches to the mile) of the County of London. With 14 Special Maps and Plans, a Directory of Public Buildings, &c., and a Complete Index. Fourth edition, revised and enlarged. Price, cloth gilt, rounded corners, 5s.

REBMAN, LIMITED, 129, Shaftesbury-avenue, W.C.

Syphilis and Gonorrhœa. By C. F. Marshall, M.D., Ch.B., B.Sc. Viet., F.R.C.S. Eng., Senior Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars, London. Price 8s. net.

The Diseases of Women. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S. Eng., and Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S. Edin., Surgeon to Outpatients, Chelsea Hospital for Women, and Gynæcologist to the Tottenham Hospital. Fourth edition. Price 11s. net.

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College. Second edition, revised. Price £1 10s. net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London.

Confessions of an English Doctor. Price 6s.

RUEFF, J., 106, Boulevard Saint-Germain, Paris.

De l'Artérite Syphilitique. Par le Dr. J. Darier, Médecin de l'Hôpital de la Pitié. Price Fr. 6.

SAUNDERS, W. B., AND CO., Philadelphia, New York, and London.

A Text-book of Operative Surgery, covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York. Second edition. Price 25s. net.

WILLIAMS AND NORGATE, 14, Henrietta-street, Covent Garden, W.C.

Liverpool School of Tropical Medicine—Memoir XIII. Reports of the Trypanosomiasis Expedition to the Congo, 1903–1904, of the Liverpool School of Tropical Medicine and Medical Parasitology. By J. Everett Dutton, M.B. Viet., John L. Todd, M.D. McGill, and Cuthbert Christy, M.B. Edin. With a Comparison of the Trypanosomes of Uganda and the Congo Free State by H. Wolferstan Thomas, M.D. McGill, and Stanley F. Linton, B.Sc., M.B. Liverpool, and a Note on Tsetse Flies by E. E. Austen, Zoological Department, British Museum. (Published for the University Press of Liverpool.) 15s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BUCKBY, ARTHUR GREY, L.F.P.S. Glasg., has been appointed Public Vaccinator, Bay of Islands and Ohacawai, New Zealand.

CAIRNS, WILLIAM, M.B., M.S. Glasg., has been appointed Health Officer for the Port of Whitianga, New Zealand.

CLARKE, W. T., M.D. Toronto, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

COLERIDGE, A., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

CUMMINGS, WILLIAM, M.B., B.Ch. R.U.I., has been appointed Physician to the Clevedon Hydropathic Institution, Somerset.

DAMMAN, GEORGE WILLIAM, M.B., Ch.B. Melb., has been appointed a Member of the Local Board of Health at Penguin, Tasmania.

ECCLES, HORACE DORSET, M.R.C.S., L.R.C.P. Lond., has been appointed Public Vaccinator, Kawakawa, New Zealand.

GIDDINGS, G. T., M.D. Durh., has been appointed Public Vaccinator of Beckenham.

LITTLER, R. M., F.R.C.S. Eng., has been appointed Honorary Assistant Medical Officer to the Southport Infirmary.

LLOYD, W. GIBBS, M.Sc., M.B., Ch.B. Viet., has been appointed Medical Officer and Public Vaccinator to the Walton Workhouse Infirmary, Liverpool.

NUTTALL, J. S. W., M.B., Ch.B. Viet., has been appointed Assistant Medical Officer to the Walton Workhouse Infirmary, Liverpool.

SMITH, R. CASSILS, M.B., Ch.B. Glasg., has been appointed House Surgeon to the Victoria Hospital for Children, Chelsea.

WARE, A. M., M.D. Cantab., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRADFORD ROYAL INFIRMARY.—House Physician. Salary £100 per annum, with board and residence.

BURY INFIRMARY.—Junior House Surgeon. Salary £80, increasing to £90, with board, residence, and attendance.

CITY OF LONDON ASYLUM, near Dartford, Kent.—Medical Superintendent. Salary £800 per annum, with house, coal, light, laundry, and garden produce.

COLCHESTER, ESSEX AND COLCHESTER HOSPITAL.—Honorary Assistant Surgeon.

DOWNPATRICK, DOWN DISTRICT LUNATIC ASYLUM.—Junior Male Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, board, washing, &c.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician and House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

GLASGOW UNIVERSITY.—Examiner in each of the following subjects: Physiology, Materia Medica and Therapeutics, and Pathology. Annual salary in each case £50. Also two Examiners in each of the following subjects: Medicine (Systematic and Clinical) and Surgery (Systematic and Clinical). Annual salary in each case £80.

GUY'S HOSPITAL MEDICAL SCHOOL.—Gordon Lectureship on Experimental Pathology.

HORTON, EPSOM, LONDON COUNTY ASYLUM.—Fourth Assistant Medical Officer. Salary £180 per annum, with board, apartments, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

HULL ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50, with board and lodging.

LEAMINGTON, WARNEFORD HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and apartments.

LIVERPOOL HOSPITAL FOR CONSUMPTION. — Honorary Assistant Physician.

MANCHESTER JEWISH HOSPITAL.—Resident Medical Officer. Honorarium £60.

MARGATE ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon, as Junior and Senior for six months respectively. Salary at rate of £80 and £120 per annum, with board and residence.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—Senior Resident Medical Officer. Honorarium at rate of £100 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, London, W.C.—House Physician. Salary £50 a year, with board and residence.

NEW HOSPITAL FOR WOMEN.—Clinical Assistant (female) for the Out-patient Department.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board and residence.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer, for four months. Salary at rate of £50 per annum, with board, residence, and washing.

RHAYADER UNION.—Public Vaccinator.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Assistant Physician.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary £100, with board and residence.

ST. MARYLEBONE INFIRMARY, Rockham-street, Ladbroke-grove-road, Notting-hill, W. — Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, rations, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Senior Clinical Assistant.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeon under the Factory Act at Bedworth, in the county of Warwick; at Wallsend, in the county of Northumberland; and at Kilwinning, in the county of Ayr.

Births, Marriages, and Deaths.

BIRTHS.

ABRAM.—On Oct. 15th, at Reading, the wife of G. Stewart Abram, B.A., M.B., of a son.

KERR.—On Oct. 15th, at London-road, Sheffield, the wife of W. S. Kerr, M.B., F.R.C.S.E., of a son.

NIXON.—On Sept. 19th, at Heidelberg, Transvaal, the wife of Edward John Nixon, J.P., District Surgeon, of a son.

STROVER.—On Oct. 16th, at West Hartlepool, the wife of H. W. M. Strover, M.B., Ch.B. Aberd., of a daughter.

MARRIAGE.

WORTS—ELLIOTT.—On Sept. 25th, at the old Parish Church, St. Leonards-on-Sea, by the Rev. Jamison, Lewis Worts, second son of Edwin Worts, J.P., M.R.C.S., L.R.C.P., of Colchester, Essex, to Caroline Mary, eldest daughter of W. G. Silcock, Esq., of Oak Lea Cottage, Hastings, and widow of the late W. G. Elliott, of Fulham.

DEATH.

MERCIER.—On Oct. 12th, at Flower House, Catford, after terrible suffering, Laura, the dearly loved wife of Charles Arthur Mercier.

Notes, Short Comments, and Answers to Correspondents.

THE AIR OF THE CITY TEMPLE.

WITH the object of testing the efficiency of the new system of ventilation which has been installed in the City Temple Church samples of air were collected during service and tested for carbon dioxide. The church was crowded in every part, so that there must have been between 2500 and 3000 persons present. The three specimens of air collected were all taken during the singing of the last hymn. On analysis the samples gave the following results:—Body of church, 8·2 volumes of carbon dioxide in 10,000 volumes; north gallery, 9·6 volumes; and west gallery, 5·1 volumes. A determination of the carbon dioxide in the open air gave 4·2 volumes in 10,000 volumes. In some preliminary experiments in connexion with the instalment of this system of ventilation a determination of the carbon dioxide was made in the shaft which runs south to north over the centre of the church and carries the vitiated air to the extraction fan. One of these determinations was made before the new system was introduced and another was made when the new system had just been installed and both determinations were made immediately after the conclusion of the Sunday evening service. These results were: old system, 29·3 volumes of carbon dioxide in 10,000 volumes; and the new system, 13·6 volumes. These results show that a great improvement has been effected in the ventilation of the City Temple.

The air of the City Temple is not merely renewed, it is purified. Fresh air is taken through two inlets, each five feet by three feet, guarded by ten feet walls which insure the air being taken that height from the ground. Each inlet is provided with an atomiser which consists of an arrangement for filling the whole aperture with an extremely fine spray of water so that the air is washed. A short distance from the inlet two hair screens, each about 25 square feet, are placed and these filter the air, which then passes through a short tunnel with concrete walls to an electrically driven fan capable of delivering one and a quarter million cubic feet per hour, and thus of renewing the whole air of the church four times per hour. From the fan it is passed through a heating apparatus into the church. The vitiated air is withdrawn through gratings under the galleries and in the ceiling of the church into the shaft before mentioned by another electrically driven fan placed in the north-west turret of the building. The work of ventilation was carried out by Messrs. G. N. Haden and Sons, engineers, of 123, Cromer-street, London, W.C., and the tests as to the efficiency of the system by Dr. W. H. Hurtley of St. Bartholomew's Hospital.

PAINLESS DESTRUCTION OF CATS.

To the Editors of THE LANCET.

SIRS,—In reply to a request from your correspondent of last week regarding the above I can, writing as one who has made a special study of the methods employed for the painless destruction of animals, emphatically assert that so far as the cat is concerned there is no more humane method than that of the lethal chamber, whether chloroform or carbonic oxide gas is used. It is far better (so far as one can judge by appearances) than the production of death from drowning. The main precaution to adopt is to give the lethal gas *slowly and gradually* and thus avoid the asphyxiating sensation which must of necessity occur if it is given suddenly in large and disproportionate mixtures? It is this which causes the symptoms of distress that your correspondent refers to; the animals naturally resent the suffocating feeling which is produced by inhalations of vapour which is sufficiently strong to be irritating but not to cause instant death. Either the box should first be *filled* with the strong lethal gas, in which case the cat will lose consciousness at once when placed in it, or it must be given *gradually* in such proportion (1 to 2 per cent. of vapour) that it causes no alarm or irritation; in the latter case, as can be easily demonstrated under a glass bell jar, the cat will sink quietly down just as if falling asleep. The box alluded to by Miss Cording is a somewhat crude arrangement and does not give the chloroform in any regular percentage. Would it not be a wise plan to purchase a proper apparatus?—the cost is not a large one.

I am, Sirs, yours faithfully,

Kensington, W., Oct. 17th, 1904. FRED. HOBDAY, F.R.C.V.S.

"ENGINEERING AT GUY'S HOSPITAL."

UNDER the above heading the *Engineer* of Oct. 14th publishes the first of a series of articles on various alterations and improvements recently effected at Guy's Hospital, the result being to provide what is described as "probably the best-designed and most efficiently arranged engineering plant possessed by any hospital." Until a year or two ago Guy's Hospital was entirely lighted by gas and when the introduction of the electric light became desirable it was found that there would be a saving if the hospital laid down a generating plant of its own. About the same time it was decided to replace the existing open fire-places by smaller slow-combustion grates and to heat the hospital generally by means of radiators. It then appeared that there would be a distinct advantage in supplying heat, electric current, and motive power from a central power-house. Much pumping has also to be done because the hospital not only obtains water from the

public mains but possesses two wells of its own. One of these wells was sunk through the London clay into the chalk about the year 1859 and supplies water suitable for drinking, whilst the other, which is of recent date, only reaches the gravel over the London clay and yields water which is used in the laundries and in the hot-water service, and for other sanitary purposes. In the central power-house the furnace gases from the boilers are discharged through economisers. Near by is the machinery room containing the dynamos and pumps, and adjoining this is the battery room, for it was found that it would be less expensive to install a battery than to run machinery continuously.

REFLECTORS FOR SUNLIGHT.

To the Editors of THE LANCET.

SIRS,—You recently referred to the scheme of some French gentlemen for constructing revolving houses so as to catch the full benefit of sunshine and to obtain shelter from inclement winds and this scheme was, I believe, commented on in many newspapers and magazines. While sitting in my office this morning, which is surrounded by high buildings, although the sun was shining it did not shine into the office. But suddenly a hinged window—called a French window, I believe—blew open and instantaneously my office was flooded with bright sunshine which seemed so cheering and which undoubtedly has a beneficial effect on the spirits, as they are called. When a minute afterwards the window blew back and the sunshine was cut off I felt sorry. Thereupon it struck me that in some circumstances moveable reflectors might be erected in some cases to reflect sunlight into offices, rooms, and even whole buildings, which seldom get it now. Of course the reflection off a plane unbacked surface is partial but still it is cheerful. The ordinary reflectors placed outside shop and other windows are too near the windows for the purpose I indicate. What I suggest may have been done years ago for all I know, but perhaps you will allow me to record the notion as it is topical and for what it is worth.

I am, Sirs, yours faithfully,

London, Oct. 15th, 1904. SUNFLOWER.

A NEW FORM OF HOSPITAL ABUSE.

THE following letter was received lately by a resident medical officer of one of our large general hospitals. This attempt to obtain medical advice gratis would seem to be a new development of the abuse of hospitals:—

> DEAR SIR,—I trust you will excuse the liberty I take in addressing you, but I should be very glad of your advice in a little matter that is troubling me, my young lady suffers very badly from wind, which occasionally causes her to faint, generally just previous to her monthly functions, and as we are always walking alone it would be awkward were she to faint when alone with me and nobody else in sight, would you therefore be kind enough to inform me the mode of procedure under such circumstances? I may inform you, by the way, that about two months ago she went into three fits one after the other which a doctor who was summoned termed spadmodic fits caused by slight sunstroke, have enclosed stamped addressed envelope for reply and thanking you, dear Sir, for any information you will be kind enough to impart to me.
>
> PS.—Does it follow that as a person goes into fits once that they are likely to occur again?

HOLMAN TESTIMONIAL FUND.

THE followed further subscriptions to the above fund have been received. The fund is now closed.

	£	s.	d.		£	s.	d.
Mr. J. Rand (additional)	1	1	0	Mr. R. H. Kinsey	1	1	0
Mr. G. Laurence Read ...	1	1	0	Mr. G. P. Field	2	2	0
Dr. W. Wilson	2	2	0	Sir Stephen Mackenzie	1	1	0

WORK OF THE APPENDIX.

To the Editors of THE LANCET.

SIRS,—Let me add one broad line to Sir William Macewen's picture of a re-habilitated appendix. Not only does it perform its functions quietly and well in health, as he has observed (THE LANCET, Oct. 8th), but when abnormal conditions arise it performs abnormal work, vicariously, and often successfully. An indication of the kind of work that is forced on it is shown in the Experiment with the Vermiform Appendix (THE LANCET, August 13th, p. 493).

I am, Sirs, yours faithfully,

Oct. 8th, 1904. ALEX. FORSYTH.

EELS IN VINEGAR.

To the Editors of THE LANCET.

SIRS,—I shall be very glad if any of your readers will be good enough through your valuable journal to enlighten me as to the life-history of eels in vinegar. I cannot find any literature on the subject. I believe vinegar containing eels has been held not to be injurious to health. Would vinegar containing eels be liable to be seized?

I am, Sirs, yours faithfully,

London, Oct. 17th, 1904. D.P.H.

VACCINATION PADS.

AN inquiry relative to vaccination pads appeared in THE LANCET of Oct. 8th, p. 1058. Messrs. Down Brothers, Limited, of 21, St. Thomas-street, London, S.E., have now sent us samples of their aseptic vaccine pads and aseptic vaccine bandages in sizes suitable both for adults and infants. Each pad is put up in a sterilised germ-proof bag together with a sterilised wool sponge for washing the patient's arm and a disc of adhesive plaster for fixing in position. The pad itself is made of sterilised cotton-wool and gauze with an impermeable backing. The bandages are similar to the pads except that they are tied with tapes instead of being fastened with the disc of plaster. The prices of the pads and bandages are respectively 2*s.* and 2*s.* 9*d.* per dozen, complete with wool sponge in germ-proof bags. The same firm also supplies vaccination shields in transparent celluloid.

ALCOHOLISM IN WOMEN.

To the Editors of THE LANCET.

SIRS,—I should feel much obliged if any of your readers would kindly tell me of any book I could procure illustrating the evils of drunkenness in women. It is for a lady patient of mine—the mother of a family—whose husband and I both think that the reading of such a book would be very beneficial. The book would require to be readable, sentimental, and morally instructive.

I am, Sirs, yours faithfully,

A. Z.

Quandary.—The members of the club have a perfect right to change their medical officer if they feel so disposed, provided that due notice is given to the present holder of the position of medical officer to the club in conformity with any regulation of such notice which is laid down in the rules. We think that our correspondent should acquaint the present holder of the post with his intention to take it if offered to him. He should also ascertain the weekly sum per head which the members pay to the present medical officer and on no account should he accept a less sum in the event of his becoming medical officer in lieu of the present holder.

Gold Flake writes: "A and B are in practice in the same village, most of the patients being contracted for at the various works. A is the public vaccinator. B is said to vaccinate his patients free of charge in order to prevent A getting the fees. Does the conduct of B come within the jurisdiction of the General Medical Council?"—Any practitioner is at liberty to treat patients gratuitously if he likes. If A can prove that B gives gratuitous vaccination solely with a view to prevent A receiving the ratepayers' money we think that possibly the General Medical Council might suggest to him that such conduct is not neighbourly, to say the least.

ERRATUM.—In the account of the annual dinner of the past and present students in the Faculty of Medicine of University College, London, in THE LANCET of Oct. 15th, p. 1103, second column, line 14, for "Sir Richard Quain" read *Mr.* Richard Quain.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (26th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (27th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (29th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (24th).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. The President: Inaugural Address. Paper:—Mr. J. F. Colyer: Some Recent Additions to the Museum of the Society (illustrated by lantern slides).

MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Discussion on the Diagnostic Value of Leucocytosis (introduced by Dr. J. H. Drysdale).

TUESDAY (25th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. R. Bucknall: The Pathology and Prevention of Secondary Parotitis.—Dr. B. N. Tebbs: Symptomatic Parotitis.

THERAPEUTICAL SOCIETY (Apothecaries' Hall, Blackfriars).—3.30 P.M. Council Meeting. 4 P.M. Annual General Meeting. Election of the Officers of the Society for the ensuing year. Papers:—Dr. A. Harries: The Therapeutical Application of the Continual Current.—Dr. G. Crichton: The Metric System in Dispensing.

WEDNESDAY (26th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8 P.M. Exhibition of Cases. 8.30 P.M. Clinical Evening.

THURSDAY (27th).—BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. General Meeting. 9 P.M. Presidential Address:—Dr. W. B. Davies: The Spa Treatment of Arthritis Deformans.

NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Clinical Meeting. Exhibition of Clinical Cases.

FRIDAY (28th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Exhibition of Clinical Cases followed by Discussion. Patients will be in attendance from 8 to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. E. Dore: Clinique. (Skin.) 5.15 P.M. Mr. T. Walker: Cystoscopy as an Aid to Urinary Diagnosis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM (City-road, E.C.).—2.30 P.M. Mr. F. Wallis: Lecture-Demonstration on Diseases of the Rectum.

TUESDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Carr: Clinique. (Medical.) 5.15 P.M. Dr. D. Robinson: Disorders of Menstruation.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. C. Williams: X Rays (illustrated with lantern slides).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Buzzard: Multiple Neuritis.

WEDNESDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. Collier: Clinique. (Surgical.) 5.15 P.M. Sir A. D. Fripp: Recent Variations in the Technique of Certain Common Operations.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Practical Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (North-Eastern Fever Hospital, St. Ann's-road, N.).—2.30 P.M. Dr. H. Cuff: Demonstration on Fevers.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM (City-road, E.C.).—10.30 A.M. Mr. L. Mummery: Clinical Demonstration in the Out-Patient Department.

THURSDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Dr. W. Ewart: The Preventive Treatment and the Protective Treatment of Chronic Heart Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Dr. McCann: The Causation and Treatment of Sterility.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture: Dr. J. E. Squire: The Arrest of Pulmonary Tuberculosis (demonstration of cases). (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. T. H. Kellock: The Treatment of Hernia.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. A. Giles: Diagnosis of Pelvic Tumours.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Murray: Demonstration of Medical Cases. (Post-Graduate Course.)

FRIDAY (28th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. N. MacLehose: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. J. Reece: Water.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Ormerod: Locomotor Ataxy.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 20th, 1904.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Oct. 14	30·20	E.	...	94	56	39	45	47	Foggy
" 15	30·03	E.	...	80	54	40	41	42	Foggy
" 16	29·98	N.E.	...	63	56	42	45	47	Fine
" 17	29·80	S.W.	0·18	64	61	47	55	56	Raining
" 18	30·09	S.W.	0·03	100	67	56	59	61	Overcast
" 19	30·42	S.E.	...	72	61	54	55	56	Foggy
" 20	30·39	S.E.	...	73	60	53	53	54	Foggy

During the week marked copies of the following newspapers have been received:—*Sheffield Daily Independent, Oban Times, Birmingham Post, Wellingborough News, Manchester City News, Irish Times, Scotsman, Pall Mall Gazette, Globe, Glasgow Herald, Leeds Mercury, Yorkshire Observer, Notts Guardian, Westminster Gazette, Belfast Whig, Echo, St. James's Gazette, Sunday Times, Cork Constitution, Civil Service Gazette, Yorkshire Herald, Wicklow People, Sussex News, Manchester Evening Chronicle, Blackburn Telegraph, Surrey Comet, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. D. W. Aitken, Lond.; Messrs. Allen and Hanburys, Lond.; A. F.; Captain S. Anderson, I.M.S., Dhubri, Assam; Messrs. Arnold and Sons, Lond.; Aberdeen University Unionist Association, Executive Committee of the; Mr. R. J. Albery, Lond.; Dr. H. B. Allen, Melbourne; Apothecaries' Society, Lond., Master and Wardens of.

B.—Dr. W. G. Barras, Govan; Messrs. Bell and Bradfute, Edinburgh; Messrs. Bates, Hendy, and Co., Reading; Bengal, Under-Secretary to the Government of; Bayer Co., Lond.; Mr. J. W. Benson, Lond.; Mr. G. Becker, Lond.; Mr. John Burns, M.P., Lond.; Dr. J. Beard, Edinburgh; Mr. Arthur C. Bird, Sidmouth; Birmingham University, Faculty of Medicine, Clerk to Dean of.

C.—Cortland Wagon Co., Lond.; Messrs. E. Cook and Co., Lond.; Cornwall County Council Sanitary Committee, Truro, Chairman of; Messrs. R. and R. Clark, Edinburgh; Mr. W. V. Cassel, Glasgow; Mr. A. H. Curtis, Lond.; Carron Co., Carron; Messrs. Colley and Co., Lond.; Dr. C. J. Cook, Indianapolis, U.S.A.; Mr. G. C. Challegu, Calcutta; Dr. Harry Campbell, Lond.; Dr. C. J. Cullingworth, Lond.; Corporation of London, Clerk of the Burial Board of the; Chorlton and Manchester Joint Asylum Committee; Cumberland Infirmary, Carlisle, Secretary of.

D.—Duryea Co., Coventry.

E.—Dr. R. J. Ewart, Rochdale; Dr. L. Erasmus Ellis, Leicester.

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